Appendix 4: Fauna Survey Images

Leucosarcia melanoleuca

Strepera graculina

Varanus varius

Psophodes olivaceus

Tachyglossus aculeatus

Varanus varius

Canis familiaris

Rattus spp.

Canis familiaris

Porzana tabuensis

Alectura lathami

Thylogale thetis

Colluricincla harmonic

Antechinus spp.

Thylogale stigmatica

Orthonyx novaeguineae

Phascolarctos cinereus

Litoria wilcoxii-MALES

Litora fallax

Litoria peronii

Limnodynastes peronii

Litoria wilcoxii-FEMALE

Phascolarctos cinereus

Morelia spilota

Melomys cervinipes

Mixophyes iteratus

Litoria latopalmata

Saproscincus challengeri

Boiga irregularis

Tyto tenebricosa

Petauroides volans

Mixophyes iteratus

Mixophyes fasciolatus

Litoria pearsoniana

Melomys cervinipes

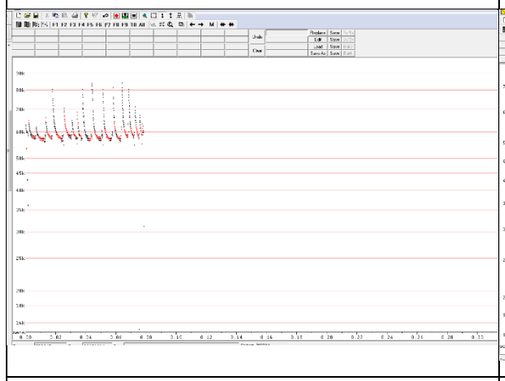
Litoria caerulea

Cryptophis nigrescens

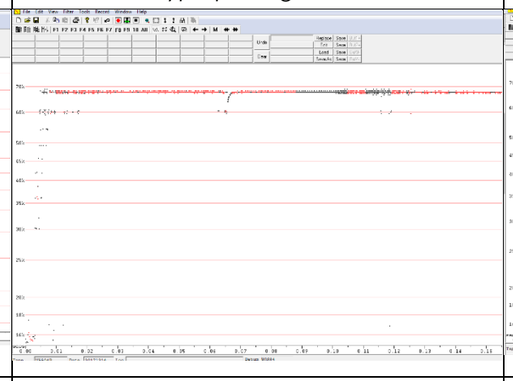
Deployed Camera

Deployed Anabat

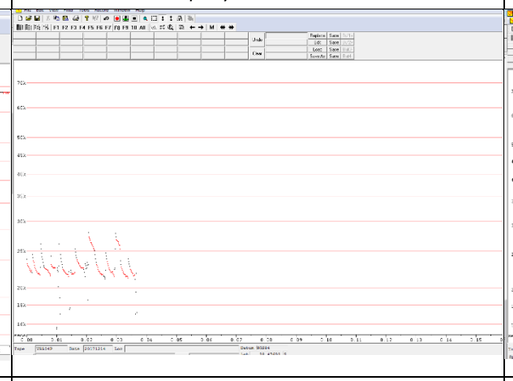
Deployed Hair Funnel



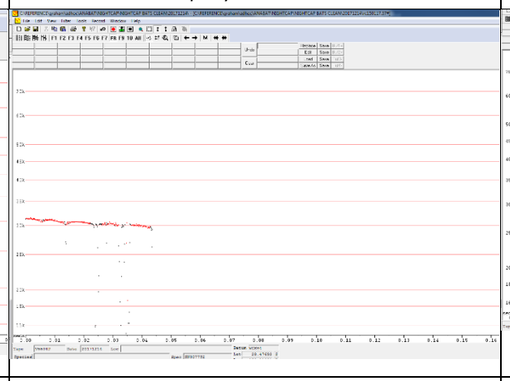
Minopteris australis call sequence



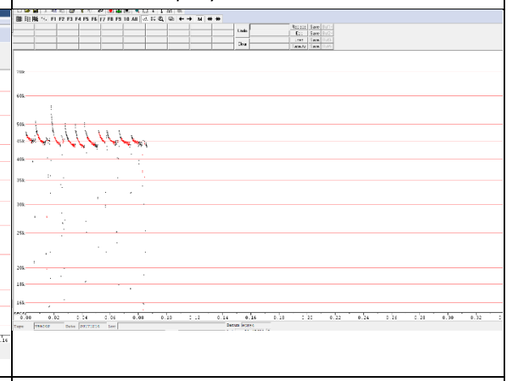
Rhinolophus megaphyllus call sequence



Chalinolobus dwyeri call sequence



Mormopteus ridei call sequence



Miniopterus schreibersii oceanensis call

Appendix 5: Bat Call Results

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9th July 2018

Hi Graham

Following are the results of bat call IDs for the sites at Nightcap, New South Wales.

Best wishes

Glenn Hoye

Site	A.au	M.no	M.ri	R.me	C.dw	C.go	C.ni	M.au	M.oc	M.ma	N.sp	S.ru	S.or	V.pu	V.tr	Total Passes
20171212	Po	C	Po	C		Po	C	C	C							21
20171213	C			C		C		C	C				C			11
20171214	C		C	C	C			C	C							16
20171215	P	C	C	C				C						1		12
20171216	C	C		C	P		C	C	Po							12
20171217	C	Po	C			C		C			C	C				17
20171218	C	C	C			C					C					57
20171219	C	C	C		C	C	P	Po			C	C	Po			56
20171220	C	C	C		C	C					C					61
20171221																0
20171222			Po			Po				C	C				C	18
20171223		P	Po			P		C		C	C					20
20171224		P				C				C	C					22
20171225									Po							1
20171226										C	C				Po	6
20171227								C		C	C					14
20171228										C						5
20171229										C	C					9
20171230										C	C					7
20171231	C			C						C	C					15
20180117				C			Po	C	C		Po			C		34
20180118				C				C			P			C		28

Site	A.au	M.no	M.ri	R.me	C.dw	C.go	C.ni	M.au	M.or	M.ma	N.sp	S.ru	S.or	V.pu	V.tr	Total Passes
20180119	C			C				C			Po			C		25
20180120				C			Po	Po	C					C	Po	12
20180121		Po		C				C			C			C		23
20180122				C	P			C	C		C			C	C	31
20180201	C	Po	C	C			C	C				P	C	C		22
20180202		Po	C	C		C		C			P			C		23
20180203		C	C	C		C		C	C			P	C	C		30
20180204	C	C	C	C		C	C	C			C	C	C	C		28
20180205		C	C			C		P	C				C	C		15
20180206		P	C	C		C	P	P	C		Po					32
20180207	C		C					Po			C			C		6
20180208			P	C					C		P			C		7
20180209		C					C									3
20180210	C		C	C		C					C			Po		6
20180211			P	C							Po			Po		4
20180212		Po	C			C				C	C			C		14
20180213			C					Po	Po							8
20180214			C			C	Po	C								5
20180215		Po	C	C				Po			C					6
20180216		C	C	C	Po			C								8
20180217						C										1

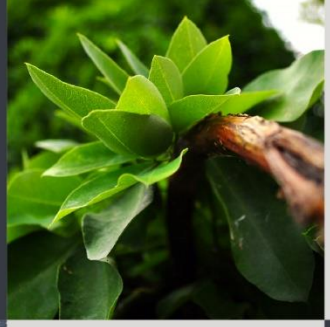
KEY

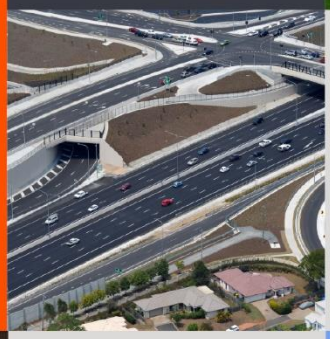
A.au	White-striped Mastiff Bat	*Austronomus australis*
M.no	East Coast Freetail Bat*	*Mormopteus norfolkensis*
M.ri	Eastern Freetail Bat	*Mormopteus ridei*
R.me	Eastern Horseshoe Bat	*Rhinolophus megaphyllus*
C.dw	Large-eared Pied Bat*	*Chalinolobus dwyeri*
C.go	Gould's Wattled Bat	*Chalinolobus gouldii*
C.ni	Hoary Bat*	*Chalinolobus nigrogriseus*
M.au	Little Bent-wing Bat*	*Miniopterus australis*
M.or	Eastern Bent-wing Bat*	*Miniopterus orianae oceanensis*
M.ma	Fishing Bat*	*Myotis macropus*
N.sp	Unidentified Long-eared Bat	*Nyctophilus sp.*
S.ru	Greater Broad-nosed Bat*	*Scoteanax rueppellii*
S.or	Eastern Broad-nosed Bat	*Scotorepens orion*
V.pu	Eastern Forest Bat	*Vespadelus pumilus*
V.tr	Eastern Cave Bat*	*Vespadelus troughtoni*

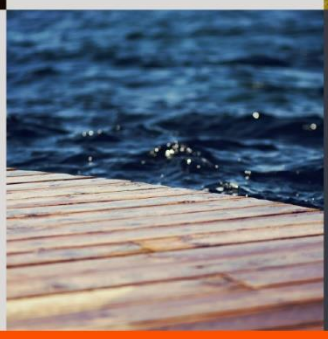
Certainty of Identification

C	Confident	P	Probable	Po	Possible

Appendix 6: Preliminary Rehabilitation Plan







PRELIMINARY REHABILITATION PLAN

2924, 2956, 2984, 3222 & 3234 Kyogle Road, Kunghur NSW 2484

Prepared for NCV Enterprises Pty Ltd
By Planit Consulting Pty Ltd

October 2020

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Project Details

Project Name	**Nightcap on Minjungbul**
Client	**NCV Enterprises Pty Ltd**
Client Project Manager	**Daniel Mulherin**
Authors	**TR & LT**
Planit Reference	**J6100**

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1 Introduction

This Preliminary Rehabilitation Plan has been prepared for the proposed concept Development Application (DA) for multiple Rural Land Sharing Communities known as Nightcap on Minjungbul.

This Preliminary Rehabilitation Plan outlines the management and rehabilitation strategy for the designated rehabilitation areas of the site. The DA is currently in its concept phase, as such this document will provide conceptual management and rehabilitation plan. Detailed strategies specific to rehabilitation zones will be addressed within future applications.

1.1 Aims and Objectives

The overarching aim of this plan is to provide a conceptual management/rehabilitation strategy to restore to the greatest extent possible the structure, function, dynamics and integrity of the pre-existing vegetation and the habitat it supports within the designated rehabilitation area.

The best practice objectives to achieve this aim are:

- Enhance and expand the existing native vegetation and habitats within the site by implementing best practice ecological restoration practices;
- Treat and remove nominated areas currently heavily infested with weeds, in particularly Camphor Laurel, exotic grasses, Privets, Lantana, and other herbaceous/woody weeds;
- Increase the regeneration capacity and condition of the native vegetation within the site;
- Protect and expand the populations of threatened flora and fauna by reducing impacts and threats and improving habitat;
- Revegetate highly degraded areas via compensatory plantings to increase habitat for native plants and animals including threatened species; and
- Reduce maintenance over time to a minimum level to ensure that weeds do not reinvade the area and impact on the native flora and fauna.

The above aims and objectives will guide the project to improve the condition and biodiversity values, increase the regeneration capacity of the native vegetation, improve connectivity for flora and fauna, reduce restoration maintenance time to a minimum and increase community capacity to restore bushland remnants.

2 Background Information

2.1 Site Description and Location

The subject site comprises twenty-one (21) allotments generally referred to as 2924, 2956, 2984, 3222 & 3234 Kyogle Road, Kunghur. The site has a total area of approximately 1584.38Ha. The site currently provides a multitude of structures/facilities across multiple allotments which consist of:

- Several dwellings;
- Camping grounds;
- Rural shed structures;
- Plantation Areas;
- Recreational structures (i.e. viewing platforms, sheds);
- Farmland/Plantation areas;
- Cabins; and
- Approximately 50km of existing unsealed roads.

The site which form the concept for multiple Rural Land Sharing Communities are identified in the table below.

Table 1: Site Details

Property Description					
Description	Area (ha)	Description	Area (ha)	Description	Area (ha)
Lot 121 on DP134446	158.17	Lot 31 on DP755714	89.03	Lot 1 on 1183098	3.02
Lot 3 on DP755714	37.93	Lot 32 on DP755714	125.45	Lot 4 on 737440	90.82
Lot 5 on DP582299	134.10	Lot 22 on DP755714	46.54	Lot 34 on 755714	47.04
Lot 1 on DP390311	162.27	Lot 19 on DP755714	48.56	Lot 2 on DP611556	122.40
Lot 35 on DP755714	30.75	Lot 8 on DP755714	16.19	Lot 1 on DP611556	5.08
Lot 11 on DP1194471	126.6	Lot 20 on DP755714	177.25	Lot 2 on DP582300	71.71
Lot 33 on DP755714	9.90	Lot 2 on DP1148316	81.51	Lot 2 on DP1235488	0.04
Total Area	1584.38ha	Total number of Lots		21	

Figure 1: Site Map

The subject site has several plantation areas most recently understood to have been re-established in 1990's and covering over 370ha of the site (refer to **Figure 2**). Partial clearing of the site likely occurred for its most valuable timbers following its acquisition in 1909. The site also operated a dairy and several small 'case mills' making packaging cases and boxes from locally sourced timbers from 1953-1963.

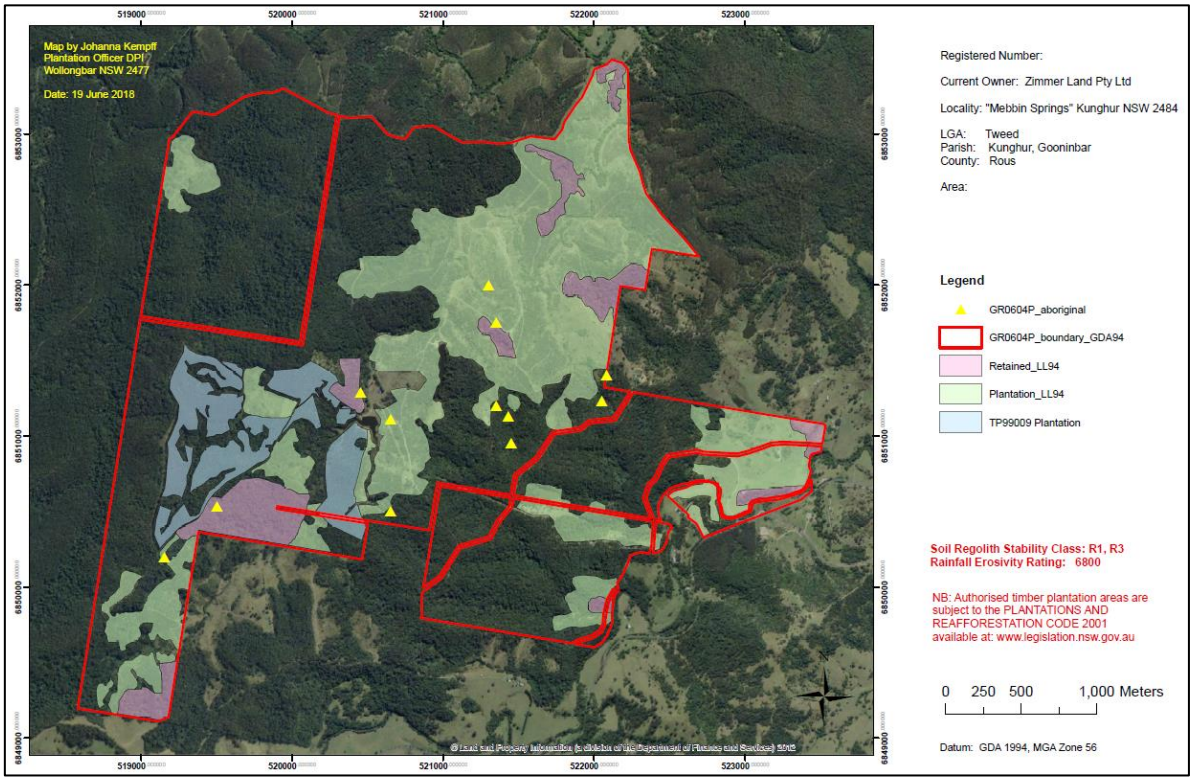


Figure 2: Plantation Plan Covering Areas of the Subject Site (Prepared by DPI, 2018)

The site contains a portion of land earmarked for potential future dam inundation to meet the Tweed Shire Councils projected water demand to 2046. In light of ongoing discussions and negotiations with Council, the proposal has considered areas 140m AHD and less for potential future inundation of a dam. As such, these areas will remain undeveloped and clear of structures, internal roads and works as part of the concept. The future dam inundation area is illustrated within **Figure 3** below.

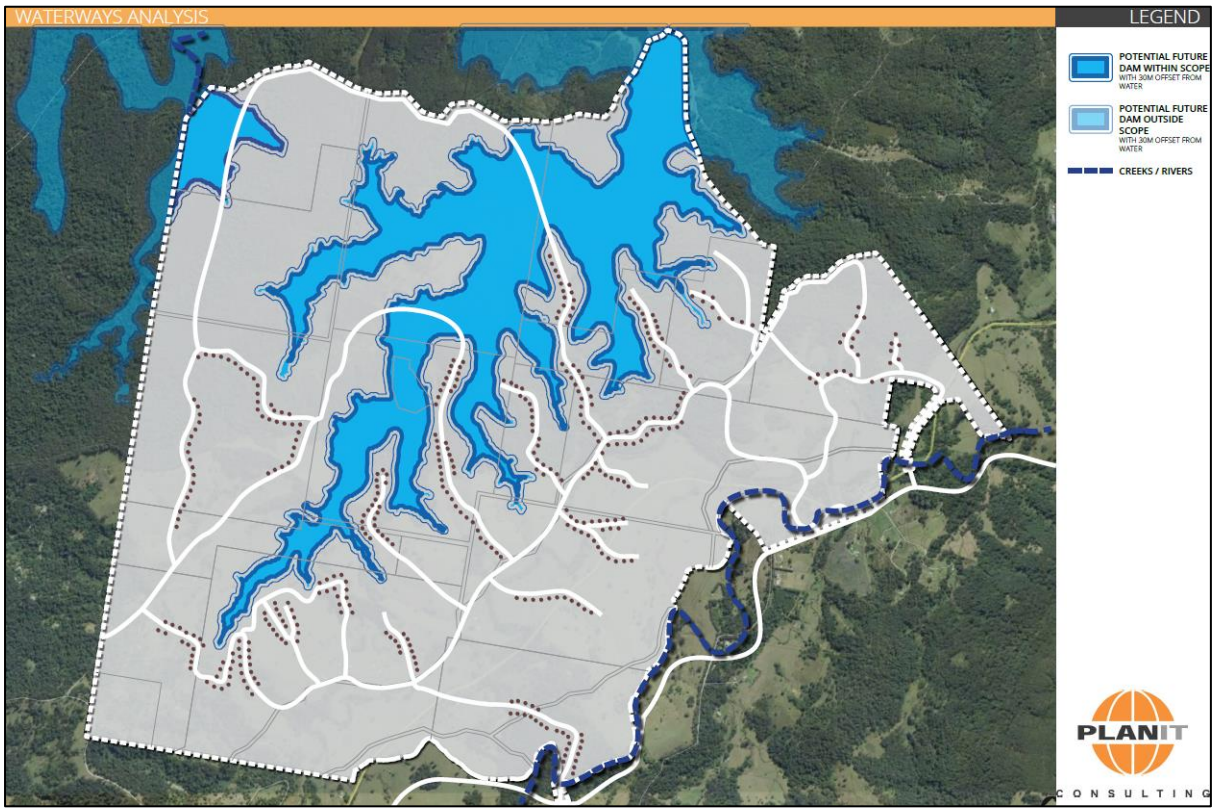


Figure 3: Potential Dam Inundation Area (Blue)

2.2 Proposal Description

The proposal represents a carefully considered, master planned approach for the site to meet an increasing demand for affordable and diverse housing. Overall, the Concept Plan and framework will facilitate the future development of 10x interconnected RLSCs spread amongst 1584ha of the Tweed Coast Hinterland. Up to 392x dwellings will be provided across these 10x RLSCs, along with all roads, essential services, community facilities, recreational spaces, cultural appreciation areas and ecological rehabilitation areas.

Each of the 10x RLSC lots accommodates between 9x and 62x dwellings based on the lot size, constraints, developable area and allowable dwelling density under the *State Environmental Planning Policy (Primary Production and Rural Development) 2019*. The projected population will range between 750 – 1,000 and considers outcomes of single occupier homes, Tweed Shire Council's typical 2.4x persons per dwelling generation rate and the allowable maximum population specified under the *State Environmental Planning Policy (Primary Production and Rural Development) 2019*.

This subject Development Application (DA) is made under Section 4.22(1) of the *Environmental Planning & Assessment Act 1979* (the Act) and sets out the proposed Concept Plan for developing the site for RLSCs.

Despite being permissible at the site in accordance with *State Environmental Planning Policy (Primary Production and Rural Development) 2019,* a Concept Plan is being pursued to seek endorsement for this expansive undertaking and coordinate its delivery through multiple future Development Applications.

This subject DA does set out in detail the first stage of development, which comprises roads and earthworks.

To summarise, the subject DA comprises:

- **Concept Proposal for 10x RLSCs; and**
- **Stage 1: Private Road Works and Earthworks**
    - To upgrade the access to Kyogle Road (opposite Mebbin Drive)
        - Earthworks
        - Vegetation removal
        - Rehabilitation works

In accordance with Division 4.4 of the Act, subsequent DAs for stages 2-12 will seek approval to subdivide the site and establish the RLSCs.

- ***Future Stage 2: Subdivision and Associated works***
    - *Subdivision creating 11 Torrens lots*
        - Earthworks
        - Vegetation removal
        - Vegetation protection/regeneration
        - Private Road works and access to Kyogle Road
        - Servicing strategy (ie. waste, resource recovery, recycled water, etc.)
        - Telecommunication and electrical connection

Future Stages 3-12: RLSCs

- *Detailed design and allocation of dwelling plots*
- *Community infrastructure (community facilities, roads, services, etc.)*
- *Plot preparation and essential infrastructure connection*
    - Earthworks
    - Vegetation removal
    - Vegetation protection/regeneration

The proposed concept plan is provided within **Figure 4** below.

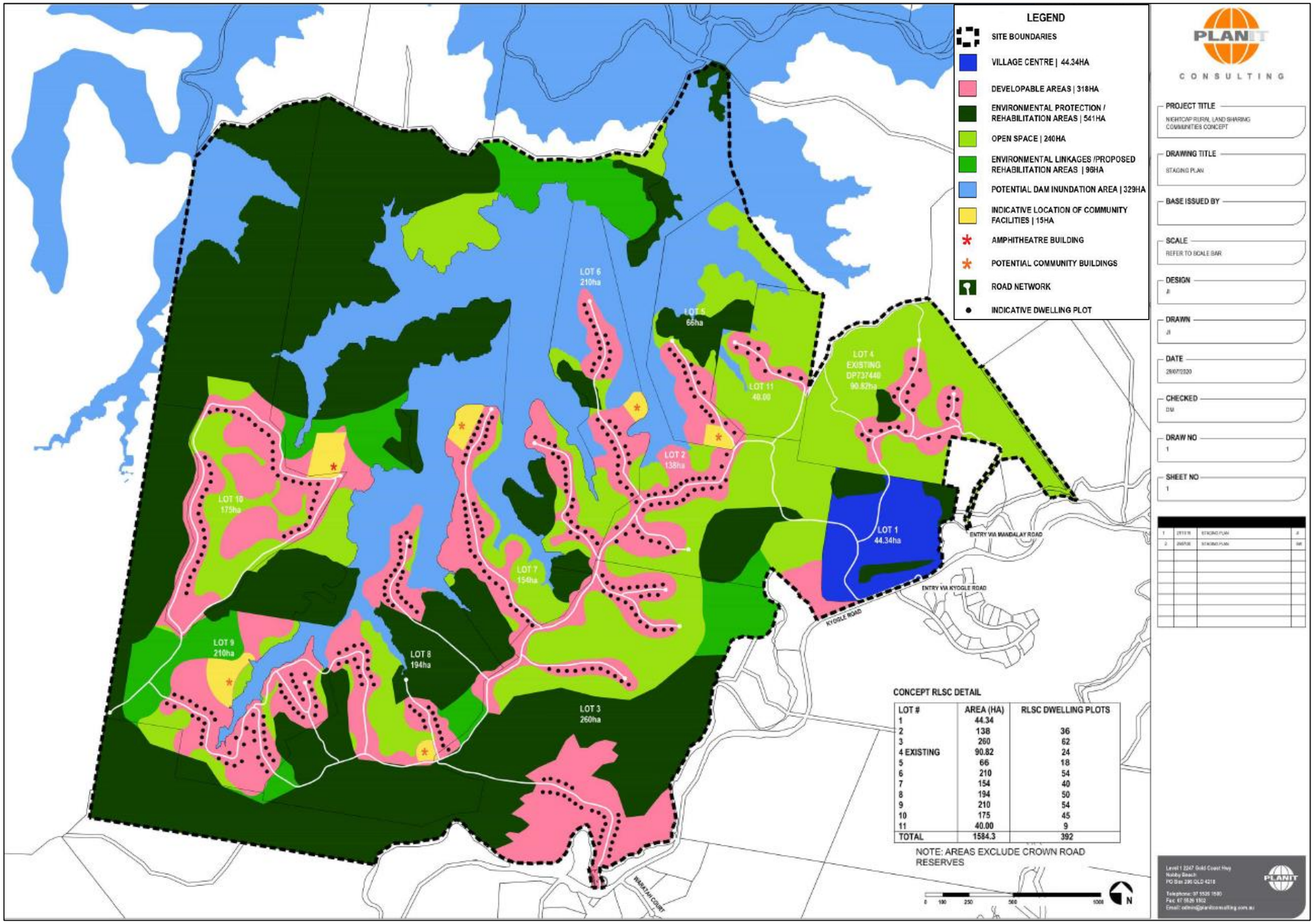


Figure 4: Proposed Concept Plan

2.3 Geology and Soils

The site has been mapped by eSPADE as containing five soil types:

- Byrrill (by);
- Kunghur (ku);
- Oxley (ox);
- Mount Terragon (mt); and
- Calico (cl).

These areas are described in more detail within 'Soil Landscapes of the Murwillumbah Tweed Heads' (Morland, 1996):

- Byrrill (by): occurs over the western portions of the site.

Location: Rolling hills occupying the western area of the Tweed Caldera. Occupies much of the area between the Border Ranges and Mount Warning, extending from the south of the sheet to just north of Tyalgum.
Geology: Walloon Coal Measures (Jurassic): mixed rock types including volcanolithic sandstone, carbonaceous siltstone, shale and mudstone, coal, bentonitic siltstone (altered volcanic ash) and minor oil shale; clayey ironstone, weathering to ironstone concretions, is common (Wells and O'Brien 1994b). Intrusions by Tertiary dykes and sills are also common (Wells and O'Brien 1994b).
Topography: Rolling low hills and hills. Slopes range from 10–25% but can be up to 50%. Relief is 60–120 m and elevation is 200–230 m. Very long (1 000–3 000 m) ridges and spurs are characteristic. Slope shapes are generally complex, but ridge slopes tend to be waxing and sideslopes are simple and moderately long (200–500 m). Crests and ridges are narrow to moderately broad (50–150 m). Drainage is erosional, tributary and convergent.
Soils: shallow to moderately deep (60–100 cm), moderately well-drained Red Podzolic Soils (Dr2.11) on sandstone; deep (>150 cm), moderately well-drained Brown Clays (Gn3.71) in areas adjoining basalt; deep (>100 cm), moderately well-drained Red Podzolic Soils (Dr3.11, Db2.11) and moderately deep (70–100 cm), moderately well-drained Greybrown Podzolic Soils (Db1.41) on shale/siltstone; deep (>100 cm), well-drained Krasnozems (Um6.13, Uf5) and Red Earths (Um5.52, Uf6.71) on ironstone; shallow to moderately deep (100 cm), moderately well-drained Dark Podzolic Soils (Dd2.11) on carbonaceous shale.

- Kunghur (ku): occurs in the eastern portions of the site.

Location: Moderately inclined hills on Bundamba Group sediments within the Tweed Caldera. Occurs predominantly on the south of the sheet in the Kunghur area, but is also present near Numinbah and Chillingham.
Geology: Bundamba Group (Triassic–Jurassic)—sandstone, siltstone, claystone, conglomerate.
Topography: Undulating and rolling hills. Relief is 100–150 m and slopes are 5–30%. Elevation is 100–300 m. Slopes are long (500–800 m) and waning. Ridges are generally convex and narrow (50–100 m), though in many instances ridge tops form moderately broad (250–300 m), level crests. Rock outcrop is common along ridges and upper slopes. These usually form discontinuous sandstone cliffs, 10–20 m high, flanked by fallen blocks and boulders. Drainage is erosional, tributary and integrated. Streams generally occupy V-shaped valleys.
Soils: shallow to deep (50–>150 cm), well-drained Yellow Podzolic Soils (Dy5.61, Dy3.81) on ridges and upper slopes. Deep (>100 cm), moderately welldrained Yellow Podzolic Soils (Dy5.21), Red Podzolic Soils (Dr5.21, Gn3.14, Gn2.14) and Red Earths (Uf6.71) on slopes. Moderately deep (100–150 cm), poorly drained Gleyed Podzolic Soils (Dg4.11, Dg4.21) and Yellow Podzolic Soils (Dy5.11, Dy5.21) on lower slopes and poorly drained areas.

- Oxley (ox): small area occurring proximate to the Outward Bound Centre.

Location: Level to gently undulating alluvial plains of the mid Oxley River catchment and the mid sections of the Tweed River.

Geology: Deep Quaternary alluvium—mainly clay, sand, gravel and silt. Sediments are derived from various lithologies including basalts, metasediments, rhyolites, gabbro, dolerite, sandstone, siltstone, coal and shales.
Topography: Level to gently undulating narrow to broad (250 – 1 000 m) alluvial plains. Plain width increases with distance downstream. Elevation ranges from 20 m upstream to 5 m in downstream locations. Local relief is generally <9m and is created by the existence of discontinuous terraces and scours. Slopes are <2%, though terrace scarps can be 30-40%. Where the Oxley and Tweed Rivers incise the narrow spine of the Chillingham Volcanics (i.e. Frogs Hollow (fh) soil landscape), the alluvial plain is very narrow or absent. Small bar plains are common within channels in the upper reaches of this soil landscape. Streams are alluvial, tributary and integrated.
Soils: shallow to moderately deep (up to 100 cm), imperfectly drained Alluvial Soils and/or minimal Prairie Soils (Um5.51) on floodplain/bar plain. Deep (>200 cm), moderately well-drained minimal Prairie Soils and dark Alluvial Clays (Uf6.32, Uf6.31, Um6.41) on alluvial plain.

- Mount Terragon (mt): occurs in the north-eastern portion of the site.

Location: A small area of high hills dominated by Mount Terragon.
Geology: Mount Warning Central Complex (Tertiary)—dolerite and basalt. This area is considered by Chesnut (1975) to be a body of sills intruding the sandstones of the Triassic Jurassic Bundamba Group. Numerous individual sills associated with Mount Terragon are exposed throughout the vicinity, extending into surrounding soil landscapes. These may consist of basalt, dolerite, rhyolite or granophyre (Chesnut 1975).
Topography: Moderately inclined to very steep high hills. Relief is 150–300 m and slope angles are 20–50% or steeper. Elevation of Mount Terragon is 350 m. Slope lengths are long (1 000– 1 500 m along ridges and 750–1 000 m along sideslopes). Slope shape is generally simple, but long ridgeslopes are waning. Streams are erosional, predominantly nontributary and are centrifugal. Rock outcrop, usually as low (2–5 m) dolerite cliffs, occurs sporadically throughout the landscape, generally on mid to upper slopes. Sills associated with Mount Terragon have no distinct surface expression though they can be clearly identified in road cuttings.
Soils: Deep (200 cm), moderately well-drained Red Podzolic Soils (Gn3.14) on sideslopes; deep (>100 cm), moderately well-drained Brown Earths or no suitable Group (Gn3.21) on lower slopes; deep (>200 cm), welldrained Krasnozems (Uf5.22) on sills. Moderately deep (100 cm), imperfectly drained Grey-brown Podzolic soils (Db2.31) on sandstone

- Calico (cl): occurs in the southern sections of Bhula Bhula.

Location: Rolling hills occupying the southern part of Tweed Caldera centred around Snake and Sunday Creeks. Type location on this sheet is traversed by Mount Burrell Road.
Geology: Walloon Coal Measures (Jurassic): grey claystones, commonly carbonaceous or with thin coal seams and fine-to mediumgrained, soft, grey lithic sandstones. Concretionary ironstone is common.
Topography: Predominantly low, occasionally high, rolling hills often displaying distinct dip and scarp slopes. Slopes range from 10–25%, with localised steeper areas (up to 60%) on scarp faces. Relief is 60–150 m. Slope lengths are moderately long to long (sideslopes 300–7000 m, ridgeslopes up to 1 000 m) and slopes are generally simple or waning. Crests and ridges are narrow to moderately broad (100–200 m).

Due to the high elevation of the site Acid Sulfate Soils are not expected to be encountered during excavations.

Topographic features of the site include the following:
1. Max RL = 190m AHD approx.
2. Min RL = 100m AHD approx.
3. Maximum grade = 30% approx.

2.4 Rivers, Streams and Waterbodies

The majority of the subject site is bordered to the south by the Tweed River which comprises of freshwater. As a result of the hilly terrain, the subject site contains numerous smaller unnamed first and second order

ephemeral streams which ultimately drains into the site's dams or Tweed River. Kunghurloo Creek traverses the site from Byrrill Creek in the north-eastern corner of the site and exits the site in the south-western corner. The majority of this creek will be subject to inundation by the proposed future dam.

KUNGHURLOO CREEK

UNNAMED EPHEMERAL STREAM WITHIN SUBJECT SITE

TWEED RIVER

TWEED RIVER

The site has not been mapped as containing any wetlands. Site assessment confirmed that no such communities occurs within, or within proximity of the subject site.

Numerous dams and waterbodies occur throughout the subject site which includes man-made farm dams to facilitate the agricultural uses of the land. Photos illustrating these areas are provided below.

WATERBODY WITHIN THE SITE

WATERBODY WITHIN THE SITE

These dams are external to the development footprint and are generally in good health (only minor weed intrusion along the banks).

2.5 Existing Vegetation Communities

An analysis of the floristic structure and species composition of the vegetation using the Bionet Vegetation Information System (OEH 2018b) at the conclusion of vegetation assessments in accordance with the BAM determined that five Plant Community Types (PCTs) are present within the Subject Site:

- Pink Bloodwood – Tallowwood moist open forest of the far northern ranges of the NSW North Coast Bioregion (PCT 1073);
- Dunn's White Gum tall open forest of the ranges of the northern NSW North Coast Bioregion (PCT 812); and
- White Booyong – Fig subtropical rainforest of the NSW North Coast Bioregion (PCT 1302).

In addition to the above PCTs, there are three (3) modified/disturbed communities present within the subject site:

- Native Plantation;
- Camphor Laurel Forest;
- Exotic Grassland / Cleared Areas; and
- Open Water

A description of the abovementioned communities is provided within the Biodiversity Development Assessment Report (BDAR) prepared for the proposal.

The abovementioned vegetation communities have been broken up into Vegetation Zones based on condition.

Vegetation communities were delineated and mapped based on species composition, structure and condition assessments as described within the sections above. The condition assessment determined that eight vegetation zones (both native and exotic and includes open water) occur within the Subject Site as follows:

- PCT 1073 / Zone 1: Moderate / Good Condition Pink Bloodwood – Tallowwood moist open forest of the far northern ranges of the NSW North Coast Bioregion;

- PCT 812 / Zone 1: Moderate / Good Condition Dunn's White Gum tall open forest of the ranges of the northern NSW North Coast Bioregion;

- PCT 812 / Zone 2: Low Condition Dunn's White Gum tall open forest of the ranges of the northern NSW North Coast Bioregion;
- PCT 1302 / Zone 1: Good Condition White Booyong – Fig subtropical rainforest of the NSW North Coast Bioregion;
- Plantation;
- Camphor Laurel Dominant Closed to Open Forest;
- Cleared Areas / Grassed Paddocks with Scattered Trees, Regrowth & Weed Thickets; and
- Open Water

Table 2: Vegetation Zone Name and Area Within Site

Vegetation Zone Name	Area within site (ha)
PCT 1073 / Zone 1: Moderate / Good Condition Pink Bloodwood – Tallowwood moist open forest of the far northern ranges of the NSW North Coast Bioregion	590.2
PCT 812 / Zone 1: Moderate / Good Condition Dunn's White Gum tall open forest of the ranges of the northern NSW North Coast Bioregion	263.1
PCT 812 / Zone 2: Low Condition Dunn's White Gum tall open forest of the ranges of the northern NSW North Coast Bioregion	79.7
PCT 1302 / Zone 1: Good Condition White Booyong – Fig subtropical rainforest of the NSW North Coast Bioregion	5.5
Plantation	338
Camphor Laurel Dominant Closed to Open Forest	5.6
Cleared Areas / Grassed Paddocks with Scattered Trees, Regrowth & Weed Thickets	297
Open Water	5
Total	1584.1

The vegetation zone map is illustrated within **Figure 5** below

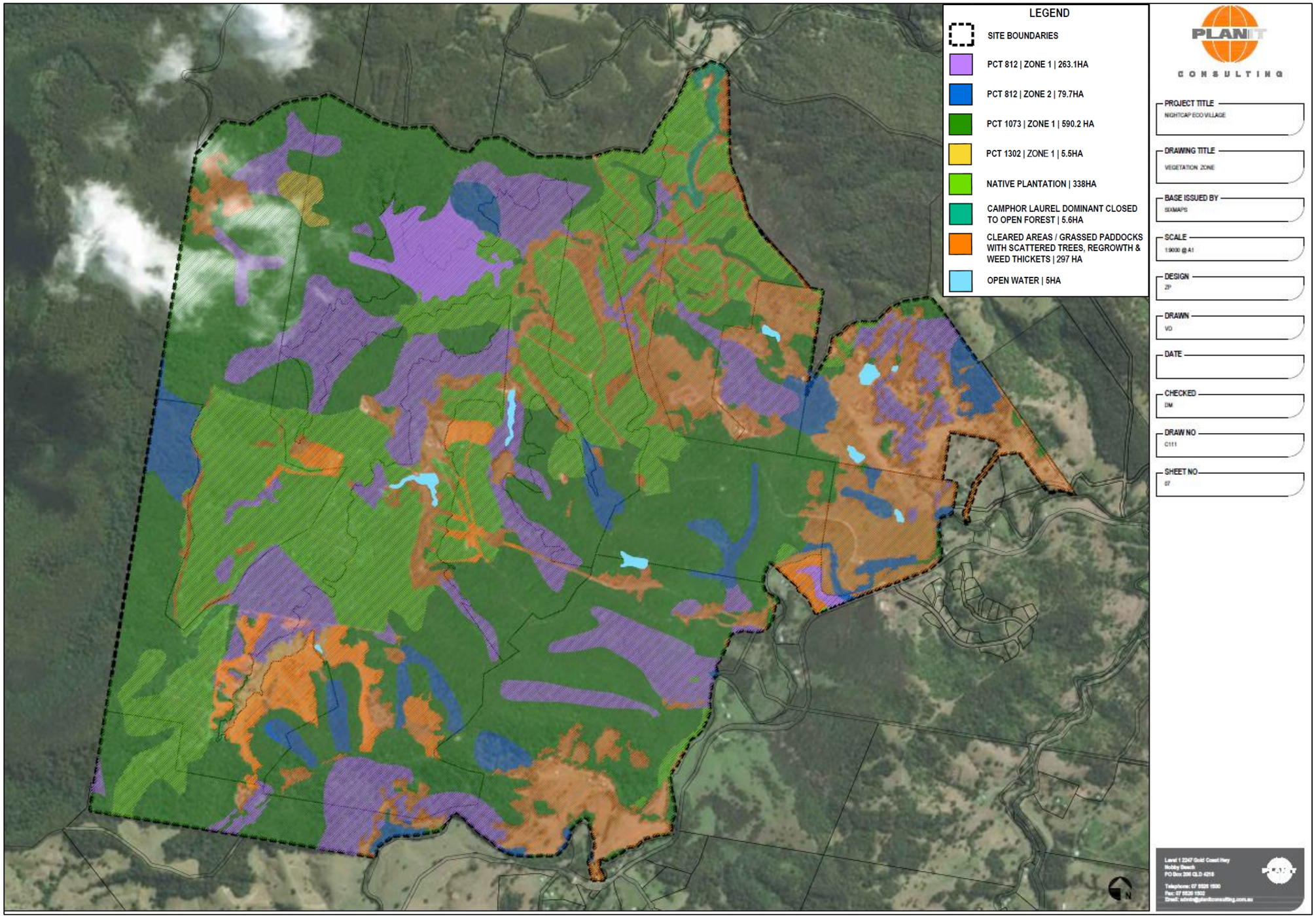


Figure 5: Vegetation Zone Map

2.5.1 Threatened Ecological Communities

Endangered Ecological Communities (EECs) are listed under Schedule 2, Part 2 of the *Biodiversity Conservation Act 2016*, while Threatened Ecological Communities (TECs) are listed under the *Environment Protection and Biodiversity Conservation Act 1999* as Critically Endangered, Endangered and Vulnerable.

An assessment of the below mentioned potentially occurring TECs (under both the BC Act and EPBC Act) has been undertaken to determine whether PCT 1302 - Fig subtropical rainforest of the NSW North Coast Bioregion or PCT 812 - Dunn's White Gum tall open forest of the ranges of the northern NSW North Coast Bioregion is consistent with the description for these TECs.

Biodiversity Conservation Act 2016

The following EEC listed under the BC Act was identified as potentially occurring within the development site:

- Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregion (Endangered); and
- White Gum Moist Forest in the NSW North Coast Bioregion (Endangered)

White Booyong – Fig subtropical rainforest of the NSW North Coast Bioregion (PCT 1302) is potentially reflective of Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregion an Endangered Ecological Community (EEC).

The occurrence of Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregion is restricted to approximately 5.5ha across the subject site. This area is well removed from the proposed development footprint and will be retained.

The extent of the occurrence of this EEC within the subject site is presented in **Figure 6**.

Dunn's White Gum tall open forest of the ranges of the northern NSW North Coast Bioregion (PCT 812) is potentially reflective of White Gum Moist Forest in the NSW North Coast Bioregion (EEC).

Reviewing the identification guidelines for endangered ecological communities: White Gum Moist Forest in the NSW North Coast, the PCT occurring within the site is not considered to be reflective of the EEC given the absence of White Gum (*Eucalyptus dunnii*) within the canopy layer, which is a requirement for this EEC. Flooded Gum (*E. grandis*) and Brush Box (*Lophostemon confertus*) dominates the upper strata of this PCT.

It is therefore considered that the EEC White Gum Moist Forest in the NSW North Coast Bioregion does not occur within the subject site.

Environment Protection and Biodiversity Conservation Act 1999

The following TEC listed under the EPBC Act was identified as potentially occurring within the subject site:

- Lowland Rainforest of Subtropical Australia (Critically Endangered).

Reviewing the Lowlands Rainforest of Subtropical Australia Listing Advice, it is considered that PCT 1302 - Fig subtropical rainforest of the NSW North Coast Bioregion is reflective of the abovementioned TEC.

As previously discussed, this area is well removed from the development footprint and will be retained and protected in-perpetuity.

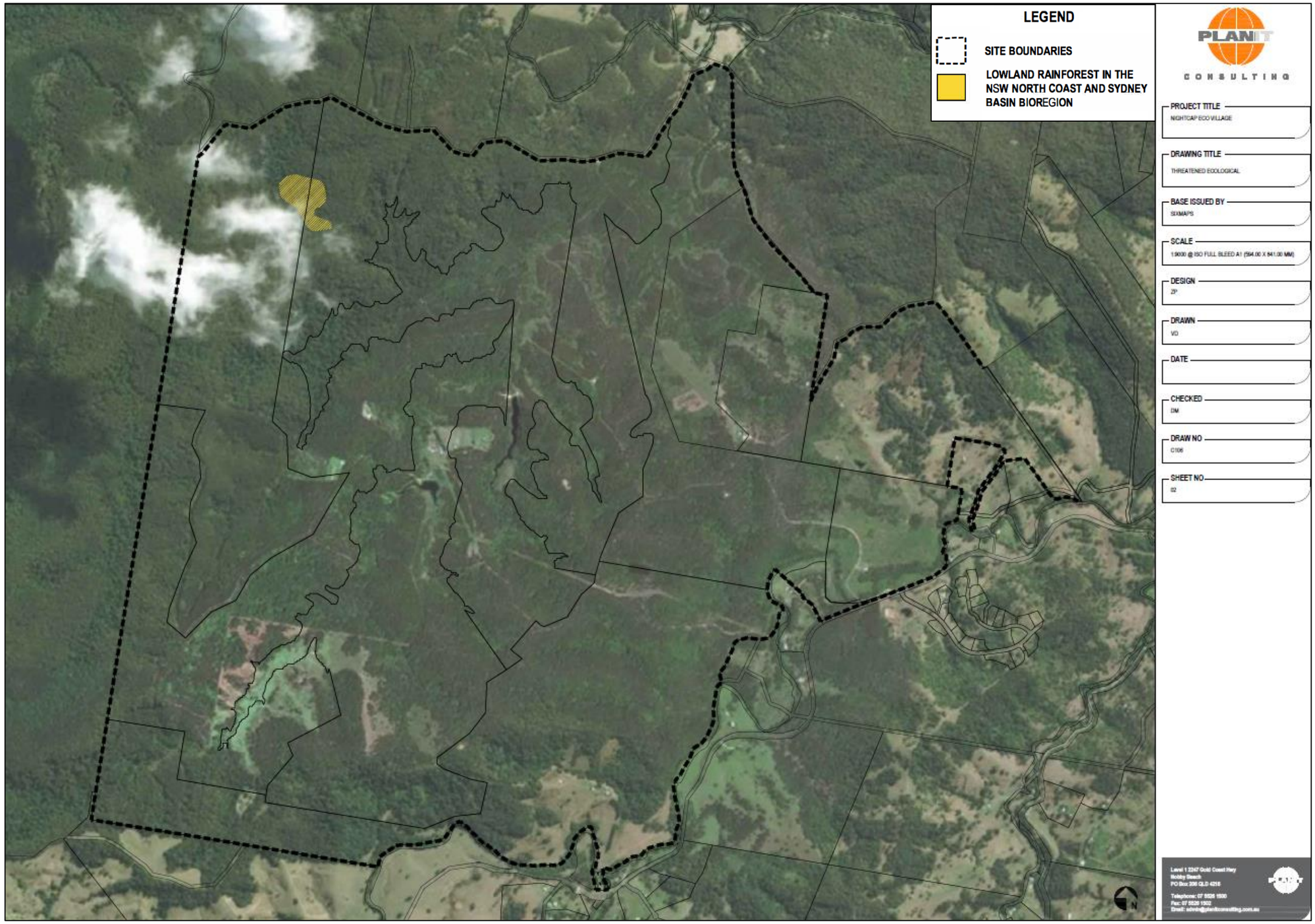


Figure 6: Threatened Ecological Communities Mapping (BC Act 2016)

2.5.2 Threatened Flora Species

Seven (7) threatened flora species under the *Biodiversity Conservation Act 2016* (BC Act) were identified within the study area during opportunistic and targeted threatened flora surveys:

Table 3: Threatened Flora Species Recorded Within the Subject Site

Species	BC Act	Occurrence
Smooth Davdison's Plum (*Davidsonia johnsonii*)	E	Four (4) planted specimens were detected proximate to a dwelling within Lot 4/DP737440 (photo below). These specimens will be retained.
Green-leaved Rose Walnut (Endiandra muelleri subsp. bracteata)	E	The species was regularly recorded within the subject site, in particularly along the gully lines of PCT 812 and PCT 1302.
Small-leaved Tamarind (*Diploglottis campbellii*)	E	Several planted specimens were noted at the rear of Sphinx Rock Café (photo below) and the Outward Bound facility.
Rough-shelled Bush Nut (*Macadamia tetraphylla*)	V	Several planted specimens within garden beds were noted at the rear of Sphinx Rock Café.
Scrub Turpentine *(Rhodamnia rubescens)*	CE	The species is abundant throughout the site and was frequently recorded within PCT 1073 and PCT 812 during survey efforts.
Rainforest Cassia (*Senna acclinis*)	E	The species was recorded on several occasions within PCT 1073 containing regenerating rainforest within the understory.
Durobby (*Syzygium moorei*)	V	Several Durobby (*Syzygium moorei*) were recorded within a yard proximate to a dwelling on Lot 34 DP755714. In addition, several planted specimens were observed within garden beds at the rear of Sphinx Rock Café (photo below) and the Outward Bound facility.

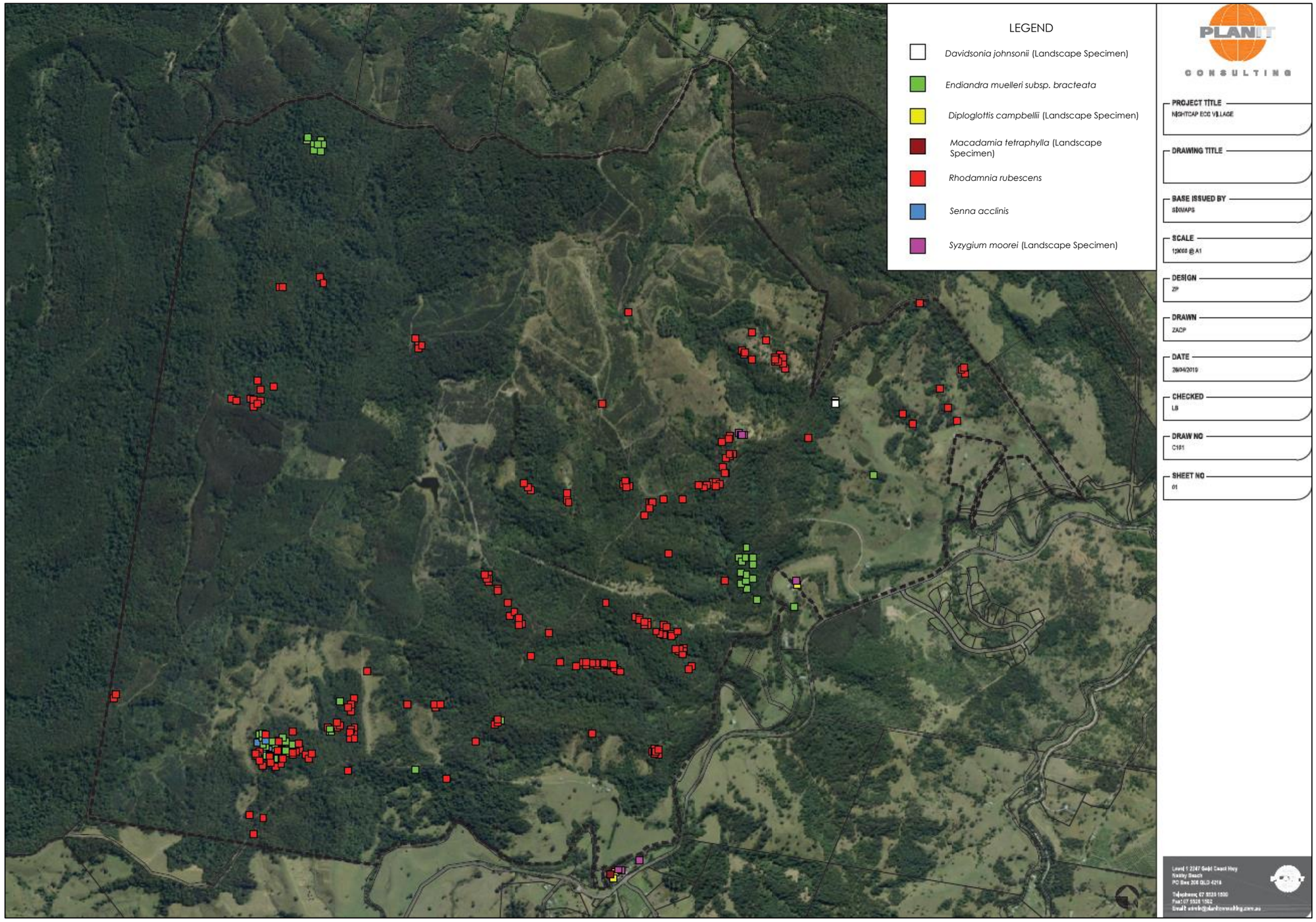


Figure 7: Threatened Flora Records

2.6 Existing Fauna Assemblage

Fauna surveys were carried out throughout the site over a 17-month period (December 2017 – May 2019), as detailed in the 'Biodiversity Development Assessment Report (BDAR)' prepared by Planit Consulting (April 2020). This survey resulted in the recording of the following species during the survey period. All bolded fauna species are threatened under the *BC Act 2016*.

2.6.1 Birds

Family	Scientific Name	Common Name
Megapodiidae	*Alectura lathami*	Australian Brush-turkey
Phasianidae	*Coturnix ypsilophora*	Brown Quail
Anatidae	*Anas superciliosa*	Pacific Black Duck
Anatidae	*Chenonetta jubata*	Australian Wood Duck
Anhingidae	*Anhinga novaehollandiae*	Australasian Darter
Podicipedidae	*Tachybaptus novaehollandiae*	Australasian Grebe
Columbidae	*Chalcophaps indica*	Emerald Dove
Columbidae	*Columba leucomela*	White-headed Pigeon
Columbidae	*Columba livia*	Rock Dove
Columbidae	*Geopelia humeralis*	Bar-shouldered Dove
Columbidae	*Geopelia striata*	Peaceful Dove
Columbidae	*Leucosarcia melanoleuca*	Wonga Pigeon
Columbidae	*Macropygia amboinensis*	Brown Cuckoo-Dove
Columbidae	*Ocyphaps lophotes*	Crested Pigeon
Columbidae	***Ptilinopus magnificus****	**Wompoo Fruit-Dove**
Podargidae	***Podargus ocellatus***	**Marbled Frogmouth**
Podargidae	*Podargus strigoides*	Tawny Frogmouth
Caprimulgidae	*Eurostopodus mystacalis*	White-throated Nightjar
Aegothelidae	*Aegotheles cristatus*	Australian Owlet-nightjar
Ardeidae	*Ardea ibis*	Cattle Egret
Ardeidae	*Egretta novaehollandiae*	White-faced Heron
Threskiornithidae	*Platalea regia*	Royal Spoonbill
Threskiornithidae	*Threskiornis molucca*	Australian White Ibis
Accipitridae	*Accipiter novaehollandiae*	Grey Goshawk
Accipitridae	*Aviceda subcristata*	Pacific Baza
Accipitridae	*Elanus axillaris*	Black-shouldered Kite
Accipitridae	*Haliastur sphenurus*	Whistling Kite
Rallidae	*Fulica atra*	Eurasian Coot
Rallidae	*Gallirallus philippensis*	Buff-banded Rail
Rallidae	*Gallinula tenebrosa*	Dusky Moorhen
Rallidae	*Porphyrio porphyrio*	Purple Swamphen
Rallidae	*Porzana tabuensis*	Spotless Crake
Charadriidae	*Vanellus miles*	Masked Lapwing
Cacatuidae	*Cacatua galerita*	Sulphur-crested Cockatoo
Cacatuidae	*Cacatua sanguinea*	Little Corella
Cacatuidae	*Calyptorhynchus funereus*	Yellow-tailed Black Cockatoo
Cacatuidae	***Calyptorhynchus lathami***	**Glossy Black Cockatoo**
Cacatuidae	*Eolophus roseicapillus*	Galah
Psittacidae	*Alisterus scapularis*	Australian King-Parrot

Family	Scientific Name	Common Name
Psittacidae	***Glossopsitta pusilla***	**Little Lorikeet**
Psittacidae	*Platycercus elegans*	Crimson Rosella
Psittacidae	*Trichoglossus chlorolepidotus*	Scaly-breasted Lorikeet
Psittacidae	*Trichoglossus haematodus*	Rainbow Lorikeet
Centropodidae	*Centropus phasianinus*	Pheasant Coucal
Cuculidae	*Cacomantis flabelliformis*	Fan-tailed Cuckoo
Cuculidae	*Cacomantis variolosus*	Brush Cuckoo
Cuculidae	*Scythrops novaehollandiae*	Channel-billed Cuckoo
Strigidae	*Ninox novaeseelandiae*	Southern Boobook
Tytonidae	*Tyto javanica*	Eastern Barn Owl
Tytonidae	***Tyto tenebricosa***	**Sooty Owl**
Alcedinidae	*Ceyx azureus*	Azure Kingfisher
Alcedinidae	*Dacelo novaeguineae*	Laughing Kookaburra
Alcedinidae	*Todiramphus sanctus*	Sacred Kingfisher
Meropidae	*Merops ornatus*	Rainbow Bee-eater
Coraciidae	*Eurystomus orientalis*	Dollarbird
Climacteridae	*Cormobates leucophaea*	White-throated Treecreeper
Ptilonorhynchidae	*Ailuroedus crassirostris*	Green Catbird
Ptilonorhynchidae	*Ptilonorhynchus violaceus*	Satin Bowerbird
Maluridae	*Malurus lamberti*	Variegated Fairy-wren
Maluridae	*Malurus melanocephalus*	Red-backed Fairy-wren
Acanthizidae	*Acanthiza pusilla*	Brown Thornbill
Acanthizidae	*Gerygone mouki*	Brown Gerygone
Acanthizidae	*Sericornis frontalis*	White-browed Scrubwren
Acanthizidae	Sericornis magnirostris	Large-billed Scrubwren
Pardalotidae	*Pardalotus punctatus*	Spotted Pardalote
Pardalotidae	*Pardalotus striatus*	Striated Pardalote
Meliphagidae	*Acanthorhynchus tenuirostris*	Eastern Spinebill
Meliphagidae	*Caligavis chrysops*	Yellow-faced Honeyeater
Meliphagidae	*Entomyzon cyanotis*	Blue-faced Honeyeater
Meliphagidae	*Lichmera indistincta*	Brown Honeyeater
Meliphagidae	*Manorina melanocephala*	Noisy Miner
Meliphagidae	*Manorina melanophrys*	Bell Miner
Meliphagidae	*Meliphaga lewinii*	Lewin's Honeyeater
Meliphagidae	*Myzomela sanguinolenta*	Scarlet Honeyeater
Meliphagidae	*Philemon corniculatus*	Noisy Friarbird
Meliphagidae	*Phylidonyris niger*	White-cheeked Honeyeater
Orthonychidae	*Orthonyx temminckii*	Logrunner
Psophodidae	*Psophodes olivaceus*	Eastern Whipbird
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike
Campephagidae	*Coracina tenuirostris*	Cicadabird
Campephagidae	*Lalage leucomela*	Varied Triller
Pachycephalidae	*Colluricincla harmonica*	Grey Shrike-thrush
Pachycephalidae	*Colluricincla megarhyncha*	Little Shrike-thrush
Pachycephalidae	*Pachycephala pectoralis*	Golden Whistler
Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler
Oriolidae	*Oriolus sagittatus*	Olive-backed Oriole

Family	Scientific Name	Common Name
Oriolidae	*Sphecotheres vieilloti*	Australasian Figbird
Artamidae	*Artamus leucorynchus*	White-breasted Woodswallow
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird
Artamidae	*Cracticus tibicen*	Australian Magpie
Artamidae	*Cracticus torquatus*	Grey Butcherbird
Artamidae	*Strepera graculina*	Pied Currawong
Dicruridae	*Dicrurus bracteatus*	Spangled Drongo
Rhipiduridae	*Rhipidura albiscapa*	Grey Fantail
Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail
Rhipiduridae	*Rhipidura rufifrons*	Rufous Fantail
Corvidae	*Corvus orru*	Torresian Crow
Monarchidae	*Grallina cyanoleuca*	Magpie-lark
Monarchidae	*Monarcha melanopsis*	Black-faced Monarch
Monarchidae	*Symposiachrus trivirgatus*	Spectacled Monarch
Petroicidae	*Eopsaltria australis*	Eastern Yellow Robin
Cisticolidae	*Cisticola exilis*	Golden-headed Cisticola
Megaluridae	*Megalurus timoriensis*	Tawny Grassbird
Timaliidae	*Zosterops lateralis*	Silvereye
Hirundinidae	*Hirundo neoxena*	Welcome Swallow
Nectariniidae	*Dicaeum hirundinaceum*	Mistletoebird
Estrildidae	*Neochmia temporalis*	Red-browed Finch
Estrildidae	*Taeniopygia bichenovii*	Double-barred Finch

2.6.2 Mammals

Family	Scientific Name	Common Name
Tachyglossidae	*Tachyglossus aculeatus*	Short-beaked Echidna
Dasyuridae	*Antechinus spp.*	Unidentified Antechinus
Peramelidae	*Isoodon macrourus*	Northern Brown Bandicoot
Peramelidae	*Perameles nasuta*	Long-nosed Bandicoot
Phascolarctidae	***Phascolarctos cinereus***	**Koala**
Petauridae	***Petaurus australis****	**Yellow-bellied Glider**
Petauridae	*Petaurus breviceps*	Sugar Glider
Petauridae	***Petaurus norfolcensis***	**Squirrel Glider**
Pseudocheiridae	***Petauroides volans***	**Greater Glider**
Pseudocheiridae	*Pseudocheirus peregrinus*	Common Ringtail Possum
Phalangeridae	*Trichosurus caninus*	Short-eared Possum
Phalangeridae	*Trichosurus vulpecula*	Common Brushtail Possum
Macropodidae	*Macropus giganteus*	Eastern Grey Kangaroo
Macropodidae	*Macropus rufogriseus*	Red-necked Wallaby
Macropodidae	***Thylogale stigmatica***	**Red-legged Pademelon**
Macropodidae	*Thylogale thetis*	Red-necked Pademelon
Pteropodidae	*Pteropus alecto*	Black Flying-fox
Pteropodidae	***Pteropus poliocephalus***	**Grey-headed Flying-fox**
Molossidae	*Austronomus australis*	White-striped Free-tailed Bat
Molossidae	***Mormopterus norfolkensis***	**Eastern Free-tail Bat**
Molossidae	*Mormopterus ridei*	Eastern Little Free-tailed Bat
Rhinolophidae	*Rhinolophus megaphyllus*	Eastern Horseshoe-bat

Family	Scientific Name	Common Name
Vespertilionidae	***Chalinolobus dwyeri***	**Large-eared Pied Bat**
Vespertilionidae	*Chalinolobus gouldii*	Gould's Wattled Bat
Vespertilionidae	***Chalinolobus nigrogriseus***	**Hoary Wattled Bat**
Vespertilionidae	***Miniopterus australis***	**Little Bent-wing Bat**
Vespertilionidae	***Miniopterus schreibersii oceanensis***	**Eastern Bent-wing Bat**
Vespertilionidae	***Myotis macropus***	**Southern Myotis**
Vespertilionidae	***Nyctophilus spp.***	**Unidentified Long-eared Bat**
Vespertilionidae	***Scoteanax rueppellii***	**Greater Broad-nosed Bat**
Vespertilionidae	*Scotorepens orion*	Eastern Broad-nosed Bat
Vespertilionidae	*Vespadelus pumilus*	Eastern Forest Bat
Vespertilionidae	***Vespadelus troughtoni***	**Eastern Cave Bat**
Muridae	*Rattus fuscipes*	Bush Rat
Muridae	*Melomys cervinipes*	Fawn-footed Melomys
Canidae	*Canis lupus familiaris*	Dog
Canidae	*Vulpes vulpes*	Red Fox
Felidae	*Felis catus*	Cat
Leporidae	*Lepus capensis*	Brown Hare
Equidae	*Equus caballus*	Horse
Bovidae	*Bos taurus*	European Cattle

2.6.3 Reptiles

Family	Scientific Name	Common Name
Gekkonidae	*Hemidactylus frenatus*	House Gecko
Scincidae	*Bellatorias major*	Land Mullet
Scincidae	*Harrisoniascincus zia*	Rainforest Cool-skink
Scincidae	*Lampropholis delicata*	Dark-flecked Garden Sunskink
Agamidae	*Intellagama lesueurii*	Eastern Water Dragon
Agamidae	*Pogona barbata*	Bearded Dragon
Varanidae	*Varanus varius*	Lace Monitor
Typhlopidae	*Anilios nigrescens*	Blackish Blind Snake
Pythonidae	*Morelia spilota*	Carpet Python
Colubridae	*Boiga irregularis*	Brown Tree Snake
Colubridae	*Dendrelaphis punctulatus*	Common Tree Snake
Colubridae	*Tropidonophis mairii*	Freshwater Snake
Elapidae	*Cryptophis nigrescens*	Eastern Small-eyed Snake
Elapidae	*Pseudonaja textilis*	Eastern Brown Snake
Elapidae	*Vermicella annulata*	Bandy Bandy

2.6.4 Amphibians

Family	Scientific Name	Common Name
Myobatrachidae	*Adelotus brevis*	Tusked Frog
Myobatrachidae	*Crinia signifera*	Common Eastern Froglet
Myobatrachidae	*Limnodynastes peronii*	Striped Marsh Frog
Myobatrachidae	*Mixophyes fasciolatus*	Great Barred Frog
Myobatrachidae	***Mixophyes iteratus***	**Giant Barred Frog**
Myobatrachidae	*Pseudophryne coriacea*	Red-backed Toadlet

Family	Scientific Name	Common Name
Hylidae	*Litoria caerulea*	Green Tree Frog
Hylidae	*Litoria dentata*	Bleating Tree Frog
Hylidae	*Litoria fallax*	Eastern Dwarf Tree Frog
Hylidae	*Litoria gracilenta*	Dainty Green Tree Frog
Hylidae	*Litoria latopalmata*	Broad-palmed Frog
Hylidae	*Litoria lesueuri*	Lesueur's Frog
Hylidae	*Litoria nasuta*	Rocket Frog
Hylidae	*Litoria pearsoniana*	Cascade Tree Frog
Hylidae	*Litoria peronii*	Peron's Tree Frog
Hylidae	*Litoria verreauxii verreauxii*	Whistling Tree Frog
Hylidae	*Litoria wilcoxii*	Stony Creek Frog
Bufonidae	*Rhinella marina*	Cane Toad

* Recorded within Mebbin National Park

2.6.5 Threatened Fauna Species

Twenty-one (21) threatened fauna species under the BC Act and/or EPBC Act were identified during the survey effort; fifteen (15) mammals, five (5) birds and one (1) amphibian:

Scientific Name	Common Name	BC Act Status	EPBC Act Status
Mammals			
Chalinolobus dwyeri	Large-eared Pied Bat	V	V
Chalinolobus nigrogriseus	Hoary Wattled Bat	V	-
Miniopterus australis	Little Bent-wing Bat	V	-
Miniopterus schreibersii oceanensis	Eastern Bent-wing Bat	V	-
Mormopterus norfolkensis	Eastern Free-tail Bat	V	-
Myotis macropus	Southern Myotis	V	-
Nyctophilus spp.	Eastern Long-eared Bat (potentially)	V	-
Petauroides volans	Greater Glider	-	V
Petaurus australis	Yellow-bellied Glider*	V	-
Petaurus norfolcensis	Squirrel Glider	V	-
Phascolarctos cinereus	Koala	V	V
Pteropus poliocephalus	Grey-headed Flying-fox	V	V
Scoteanax rueppellii	Greater Broad-nosed Bat	V	-
Thylogale stigmatica	Red-legged Pademelon	V	-
Vespadelus troughtoni	Eastern Cave Bat	V	-
Birds			
Calyptorhynchus lathami	Glossy Black Cockatoo	V	-
Glossopsitta pusilla	Little Lorikeet	V	-
Podargus ocellatus	Marbled Frogmouth	V	-
Ptilinopus magnificus	Wompoo Fruit-Dove*	V	-
Tyto tenebricosa	Sooty Owl	V	-
Amphibians			
Mixophyes iteratus	Giant Barred Frog	E	E

* Recorded within Mebbin National Park

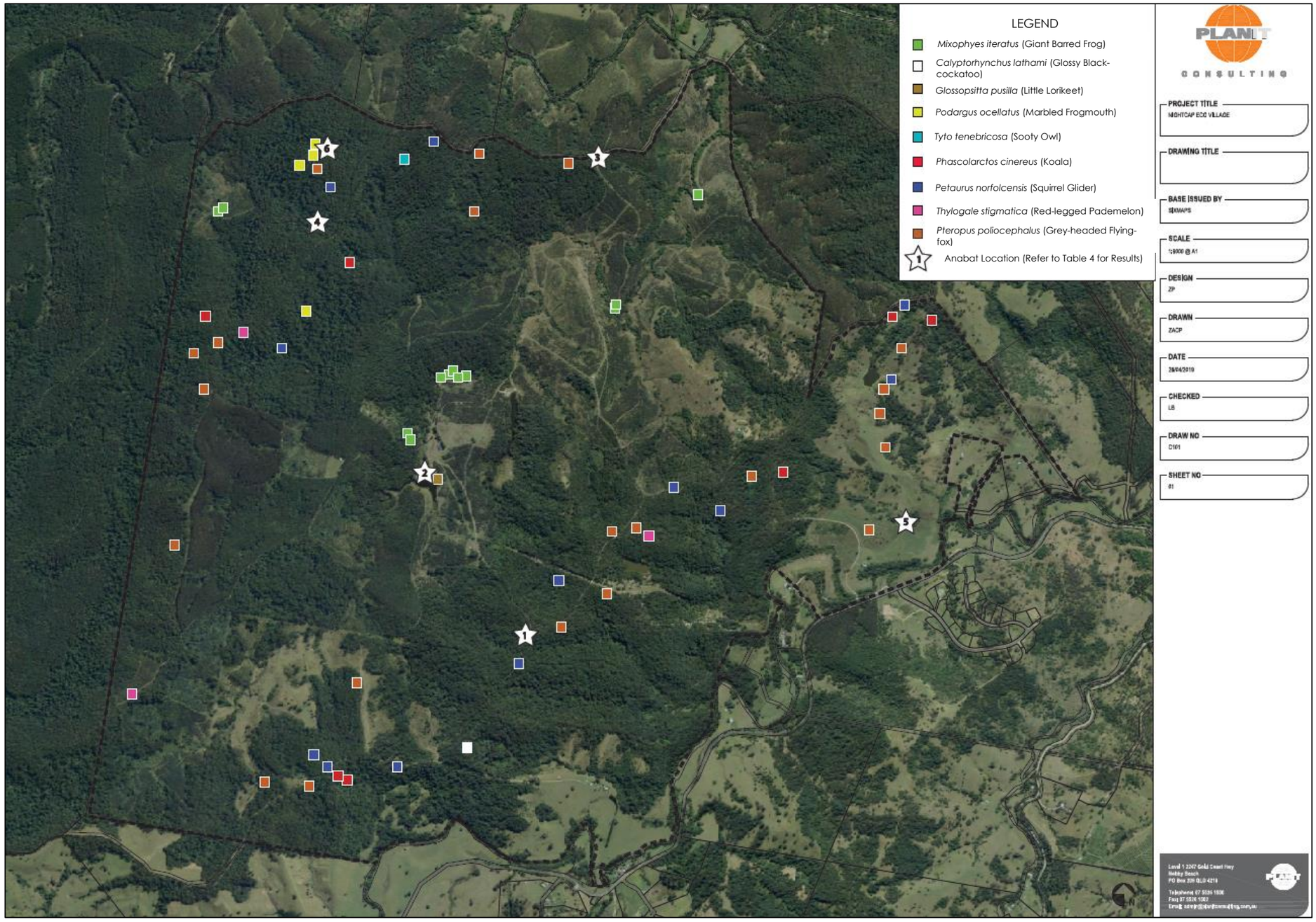


Figure 8: Threatened Fauna Records

Table 4: Recorded Threatened Microbat Locations (Refer to Figure 8 for Area Locations)

Anabat Location	Threatened Microbat Species Recorded
Area 1	• East Coast Freetail-bat (*Mormopterus norfolkensis*) • Large-eared Pied Bat (*Chalinolobus dwyeri*) • Hoary Wattled Bat (*Chalinolobus nigrogriseus*) • Little Bent-wing Bat (*Miniopterus australis*) • Unidentified Long-eared Bat (*Nyctophilius sp*)* • Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*) • Greater Broad-nosed Bat (*Scoteanax rueppellii*)
Area 2	• East Coast Freetail-bat (*Mormopterus norfolkensis*) • Large-eared Pied Bat (*Chalinolobus dwyeri*) • Hoary Wattled Bat (*Chalinolobus nigrogriseus*) • Little Bent-wing Bat (*Miniopterus australis*) • Unidentified Long-eared Bat (*Nyctophilius sp*)* • Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*) • Greater Broad-nosed Bat (*Scoteanax rueppellii*) • Southern Myotis (*Myotis macropus*) • Eastern Cave Bat (*Vespadelus troughtoni*)
Area 3	• East Coast Freetail-bat (*Mormopterus norfolkensis*) • Large-eared Pied Bat (*Chalinolobus dwyeri*) • Hoary Wattled Bat (*Chalinolobus nigrogriseus*) • Little Bent-wing Bat (*Miniopterus australis*) • Unidentified Long-eared Bat (*Nyctophilius sp*)* • Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*) • Eastern Cave Bat (*Vespadelus troughtoni*)
Area 4	• East Coast Freetail-bat (*Mormopterus norfolkensis*) • Hoary Wattled Bat (*Chalinolobus nigrogriseus*) • Little Bent-wing Bat (*Miniopterus australis*) • Unidentified Long-eared Bat (*Nyctophilius sp*)* • Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*) • Greater Broad-nosed Bat (*Scoteanax rueppellii*)
Area 5	• East Coast Freetail-bat (*Mormopterus norfolkensis*) • Hoary Wattled Bat (*Chalinolobus nigrogriseus*) • Little Bent-wing Bat (*Miniopterus australis*) • Southern Myotis (*Myotis macropus*) • Unidentified Long-eared Bat (*Nyctophilius sp*)* • Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*)
Area 6	• East Coast Freetail-bat (*Mormopterus norfolkensis*) • Large-eared Pied Bat (*Chalinolobus dwyeri*) • Little Bent-wing Bat (*Miniopterus australis*) • Unidentified Long-eared Bat (*Nyctophilius sp*)* • Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*)

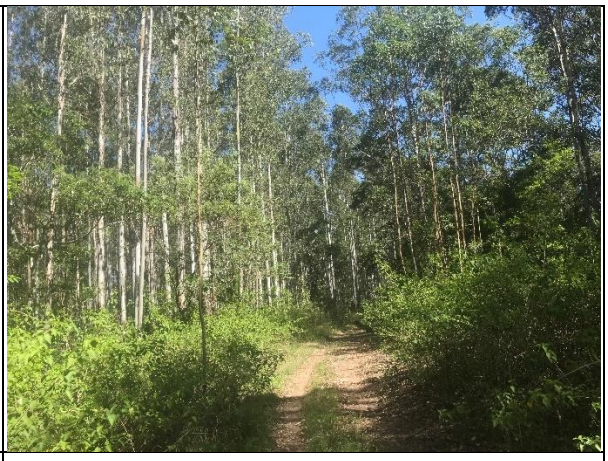
* An unidentified Nyctophilus species was regularly recorded via ANABAT survey efforts. As there are local records of the *Nyctophilus bifax* it is considered probable that this species was recorded.

2.7 Connectivity Features

Wildlife corridors can be defined as 'retained and/or restored systems of (linear) habitat which, at a minimum enhance connectivity of wildlife populations and may help them overcome the main consequences of habitat fragmentation' (Wilson & Lindenmayer, 1995). Corridors can assist ecological functioning at a variety of spatial and temporal scales from daily foraging movements of individuals, to broad-scale genetic gradients across biogeographical regions (Parsons Brinkerhoff, 2005).

It is noted that areas of the site have been nominated as being located within a 'regional corridor' which links Mebbin National Park to Nightcap National Park (refer to **Figure 9**). Such is connected to Border Ranges National Park and Wollumbin National Park.

The regional corridor' occurring through the site traverse significant areas of plantation areas which are dominated by Lantana (*Lantana camara*) up to 2m in height. These areas provide low ecological values and likely hinders movement opportunities for non-volant fauna species (photos below).

	
MAPPED REGIONAL CORRIDOR TRAVERSING LANTANA DOMINANT PLANTATION AREAS	*MAPPED REGIONAL CORRIDOR TRAVERSING LANTANA DOMINANT PLANTATION AREAS*

In addition to this, the proposed future dam inundation area (**Figure 4**) provides a significant barrier for ground-dwelling fauna species that are reluctant to swim. This future dam inundation areas entirely dissects the existing mapped 'regional corridor'.

Reviewing the above, it is considered a more suitable location for the 'regional corridor' occurs along the southern portions of the subject site which by-passes the future inundation areas and plantation and eventually re-connects to the existing 'regional corridor' (refer to **Figure 9**). The quality of vegetation within these areas are superior as to those within the existing 'regional corridor' traversing the site (photos below).

RETAINED BUSHLAND WITHIN PROPOSED REGIONAL CORRIDOR	*RETAINED BUSHLAND WITHIN PROPOSED REGIONAL CORRIDOR*

It is anticipated that retained areas of the subject site will be incorporated into a biodiversity stewardship site. This stewardship agreement enhances ecological values within these retained areas through implementing management actions (i.e. weed control, pest control, native plantings) and protecting these areas in perpetuity.

Additionally, the proposed restoration works would provide additional habitat over time to facilitate movements of local fauna. These areas connect the site with neighbouring remnant vegetation and National Parks, allowing fauna movement opportunities across the broader landscape.

Such restoration methods are described within this plan.

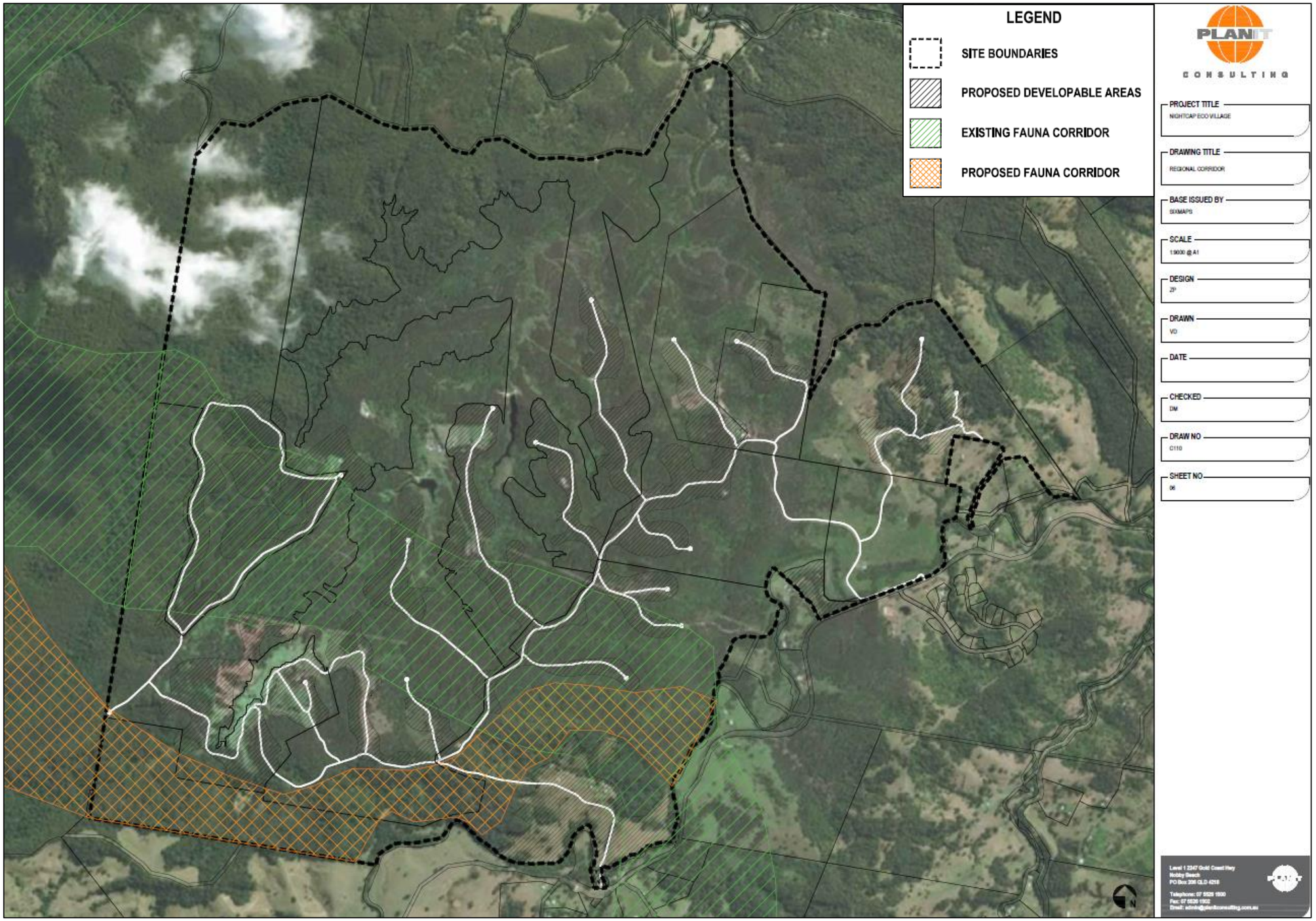


Figure 9: Fauna Corridor Plan

2.8 Preliminary Direct Impacts

Clearing of vegetation will be the major direct impact associated with the intended development. Direct impact includes the loss of vegetation and fauna habitats as a result of clearing works in order to facilitate works required for the proposal.

A summary of the proposed clearing rates for the overall development footprint is tabulated below. A Vegetation Clearing Plan has also been prepared which illustrates the areas proposed for clearing/modification (refer to **Figure 10**).

Table 5: Conceptual Clearing Rates as a Result of the Entire Proposal

Vegetation Zone	Approx. extent within subject site (ha)	Approx. extent to be cleared\modified (ha)	Approx. extent to be retained (ha)	Approx. % remaining
PCT 812 | Zone 1	263.1	11.8	251.3	95.5
PCT 812 | Zone 2	79.7	3.8	75.9	95.2
PCT 1073 | Zone 1	590.2	91	499.2	84.58
PCT 1302	5.5	0	5.5	100
Plantation	338	102.9	235.1	69.6
Camphor Laurel Dominant Closed to Open Forest	5.6	0	5.6	100
Cleared Areas/Grassed Paddocks with Scattered Trees, Regrowth & Weed Thickets	297	117.4	179.6	60.47
Open Water	5	0	5	100
Total	**1584.1**	326.9	1257.2	79.36

The above clearing rates are at a 'worst case scenario' and is considered to be significantly reduced at the D.A stage. The clearing is proposed to be staged. Further discussions regarding the proposed staged clearing is provided within the Biodiversity Development Assessment Report (BDAR) prepared for the proposal.

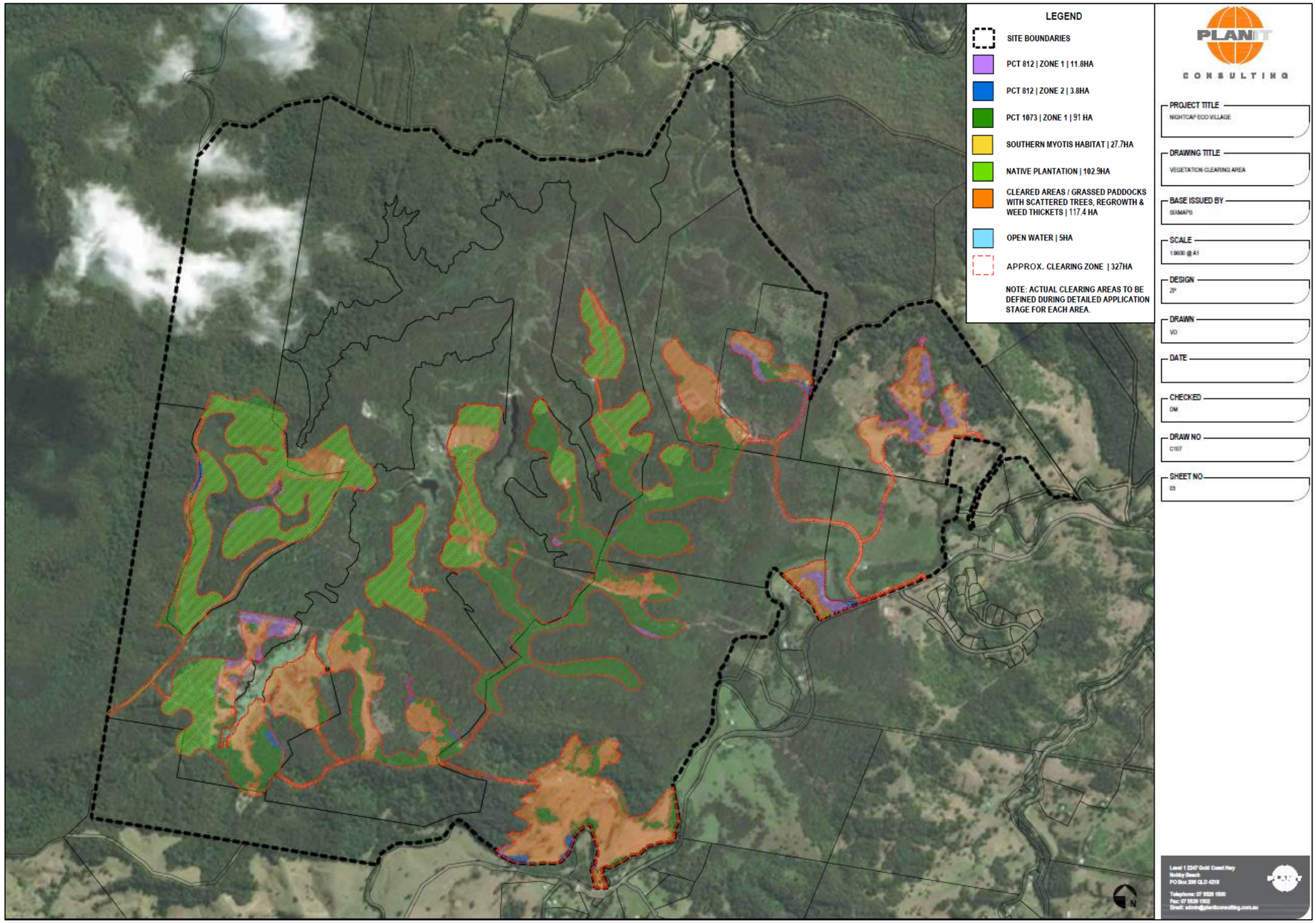


Figure 10: Preliminary Vegetation Clearing Plan

3 Rehabilitation/Restoration Approach

This section outlines the ecological restoration approach within the proposed open space areas subject to future restoration works. As the proposal is only at a conceptual stage, this restoration approach is only preliminary. A more detailed rehabilitation plan is to be prepared at the D.A stage once detailed plans are prepared. The proposed future Biodiversity Stewardship Site Assessment Report (BSSAR) will detail a variety of management strategies and plans which will also involve proposed restoration works of retained areas of the site.

There are four commonly recognised ecological restoration approaches as identified in **Table 6** below. After numerous site investigations it is considered that a 'Natural Regeneration' and 'Assisted Natural Regeneration' will be necessary to successfully rehabilitate the future nominated restoration zones. Where areas are too degraded to successfully be restored utilising these restoration approaches, it is recommended that the 'Reconstruction' approach be undertaken. Weed treatment will be required to remove the medium to high density of weeds occurring within the lower and ground strata which will then be followed by compensatory plantings.

Table 6: Common restoration approaches (SEQERF per McDonald, 2006)

ECOLOGICAL RESTORATION APPROACH	CIRCUMSTANCES WHERE APPROPRIATE	EXAMPLES
Natural regeneration	Where resilience is intact and recovery is automatic with the removal of the cause of the damage.	Where fencing to exclude stock enables natural regeneration of plants.
Assisted natural regeneration	Where degrees of resilience exist and "triggering" interventions (either disturbance or resource provision[1]) can affect recovery by natural regeneration.	Where lantana and exotic groundcovers affect a rainforest understorey.
Reconstruction	Where resilience is depleted, and abiotic or biotic elements need wholesale importation or major amendment before recovery can commence.	Where native vegetation has been removed and is not naturally recruiting, but site topography remains unchanged.
Fabrication (Type conversion)	Where conditions are permanently changed and better-adapted local systems can be regenerated or constructed to restore integrity to the landscape.	Where topography has changed so drastically, that the original ecosystem can no longer be re-established on the site.

The objectives for ecological restoration within the future rehabilitation area include:

- Enhance and expand the existing native vegetation and habitats by implementing best practice ecological restoration approaches and techniques;
- Increase the regeneration capacity and condition of the native vegetation;

- Protect and expand the populations of threatened flora and fauna and endangered ecological communities by reducing impacts and threats and improving habitat; and
- Reduce maintenance over time to a minimum level to ensure that weeds do not reinvade the area and impact on the native flora and fauna.
- Compensate for the removal of vegetation associated with the proposal.

Rehabilitation works should seek to stabilize and reverse the negative effects of habitat fragmentation. In doing so, priority should be given to works that protect and expand larger remnants (and/or vegetation cover within fragmented remnants). This is based on the following ecological observations:

- Habitat fragmentation generally reduces the viability of both faunal and floral populations by restricting ranges of fauna below minimum levels and by preventing the natural exchange of genetic material which may ensure genetic vigour.
- Reconnecting fragmented landscapes into larger, (and, where appropriate, more consolidated) units by filling in gaps can increase habitat area and may improve linkages for passage of species. (The configuration of those linkages, however, will determine whether edge/area ratios reduce or increase.).
- Narrow corridor links may themselves be subject to feral predation, disease and species imbalances, therefore, the width of a corridor should exceed the extent of edge effects.
- Biological potential for diverse natural regeneration and expansion frequently exists in and adjacent to remnants. Investments which harness this potential usually provide higher ecological returns than reconstruction elsewhere (Greening Australia, 1999).

3.1 Rehabilitation Process

A long-term staged rehabilitation/revegetation process will be proposed for nominated areas of the site, which will include revegetation of areas currently bare. Additional rehabilitation works (primarily weed control) to residual areas of nominated restoration land which are currently already forested. This strategy shall chronologically focus upon assisting natural regeneration, plantings of pioneer species (to establish cover and suppress pasture weeds) and increasing floristic diversity. Additional actions to exclude cattle and increase foraging potential for threatened fauna shall also be performed. The residual forested areas of retained areas will also be subject to restoration works as per this plan (i.e. weed control, rubbish removal etc.).

The rehabilitation process will be subject to regular monitoring and maintenance regimes. Annual reporting will be prepared documenting all monitoring/review requirements of the rehabilitation strategy. Further details regarding the methodology will be provided within the future detailed restoration plan.

3.2 Rehabilitation Area

Over 900 ha of the total site area (~1584 ha) has the potential to achieve ecological outcomes and for retention, protection and/or restoration purposes (refer to **Figure 11**). It is anticipated that some of this area will be incorporated into a future biodiversity stewardship site with residuals areas of open space proposed for restoration (where appropriate).

This voluntary biodiversity stewardship agreement under the Biodiversity Offset Scheme, enhances ecological values within the rehabilitation area through the implementation of management actions (i.e. weed control, pest control, native planting) and protecting this area in perpetuity.

Future management documents will categorise the rehabilitation area into smaller 'rehabilitation zones'. The management actions for these rehabilitation zones will be tailored to each zones' characteristics (i.e. vegetation community, native vegetation composition, density of weeds, desired environmental outcome).

General management actions to be carried out within the rehabilitation area includes weed management and revegetation/regeneration.

It is noted that this mapped area is only conceptual and will be modified at a later stage of the proposal. Factors such as the development footprint, dam inundation areas and geological constraints will help determine the actual areas subject to a Biodiversity Stewardship Agreement and/or restoration works

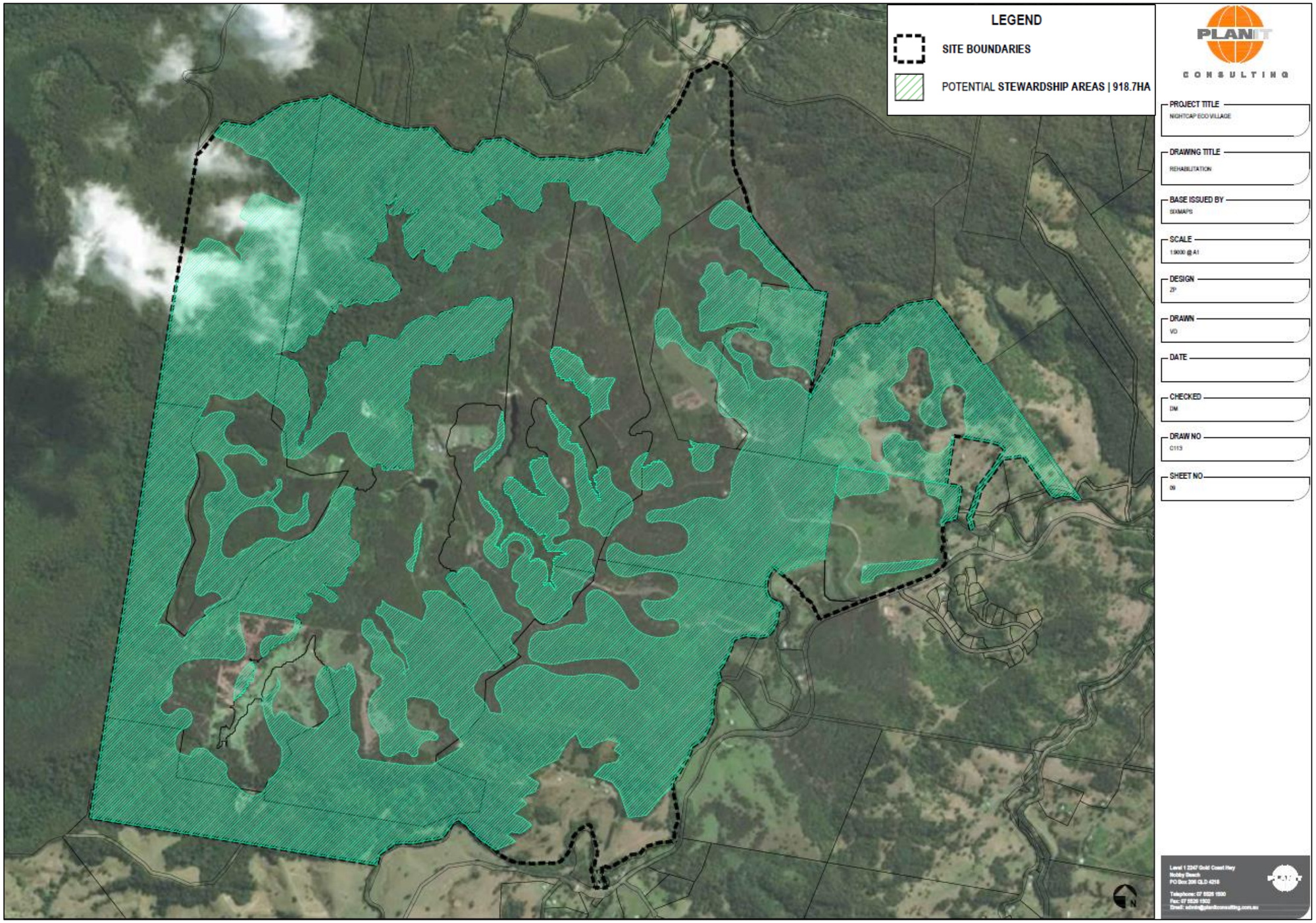


Figure 11: Potential Rehabilitation/Future Stewardship Areas within the Site

3.3 Weed Control

The condition of vegetation and density of weeds varies across the proposed rehabilitation area. Areas within and proximate to plantation and cleared areas are generally dominated by Lantana (*Lantana camara*) and exotic grasses with other herbaceous woody weeds also prevalent.

Significant portions of Tweed River and Kunghurloo Creek are dominated by Camphor Laurel (*Cinnamomum camphora*), Privets (*Ligustrum lucidum, L. sinese*), Lantana (*Lantana camara*), Castor Oil Plant (*Ricinus communis*) and exotic grasses (i.e. *Setaria sp, Paspalum sp.* etc.).

TYPICAL UNDERSTOREY DOMINATED BY WEEDS

The following weed management strategy has been prepared for the future rehabilitation area. The intent of the strategy is to progressively remove weed species from the designated Management Areas and encourage natural regeneration of native plants therein. Additionally, weed control will be required within the rehabilitation area prior to replantation occurring.

Weed control in this context consists of several stages: (a) primary weed control (b) follow up weed control and (c) maintenance of the site. Slashing is not to be utilised as a management approach to weed removal.

a) Primary weed control

This involves initial weed control within a designated area and aims at destroying the parent weed seed source on the site. The process of primary weed control requires accurate identification of all plant species and application of the appropriate control method for individual weed species. At this site it involves techniques such as spraying large areas of the introduced grasses, cutting and painting or

overspray of Lantana and other woody weeds and careful spot spray of small weed seedlings. On the other hand it may involve careful hand removal of weeds along the creek line or adjacent to native seedlings. Effective and accurate weed control at this stage is fundamental to successful restoration of plant communities.

b) Follow up weed control

Upon completion of primary weed control, resources for plant growth such as light, space, moisture and nutrients are made available to nearby plants and soil seed banks. Plants both native and weed will start regenerating and the aim is to remove the weeds at seedling stage so as to prevent their further spread. By controlling weeds before they flower and fruit also makes available the resources for native regenerating plants. The follow up weed control generally involves spot spraying the emerging weed seedlings in the site after primary weed control. Accurate identification of all plants is vital at this stage as incorrect identification can result in the destruction of native species and exhaustion of the native soil seed bank or the promotion of weed species if incorrectly identified as native species. Follow-up weed control is essential to the long-term restoration of native vegetation. Regeneration of native species may be initiated but will be short-lived if weeds reclaim the site.

c) Maintenance

Timely site maintenance which frequently involves spot spraying of weed species is ongoing. Frequency and duration will vary according to the response of the native vegetation, viability of weed seed in the soil and the proximity of weed sources for re-infestation of the site.

Substantial research has been undertaken with respect to weed management activities within areas of native bushland and the 'assisted natural regeneration' strategy to be adopted on the subject site is consistent with the following:

- Bradley, J. (1988) *Bringing back the bush: The Bradley method of bush regeneration.* Lansdowne Publishing Pty. Ltd. The Rocks, NSW;
- Buchanan, R. A. (1989) *Bush Regeneration: Recovering Australian Landscapes*. TAFE Student Learning Publications, NSW;
- Robertson, M. (1994) *Stop Bushland Weeds: A guide to successful weeding in South Australia's bushland*. The Nature Conservation Society of South Australia Inc;
- Greening Australia (1995) *Local Greening Plans: A Guide for Vegetation and Biodiversity Management*. Greening Australia, Canberra;
- Department of Planning (1991) *Urban Bushland*. Department of Planning, Sydney.
- Department of Environment and Heritage (1999) *Suggested Conservation Criteria for Development Assessment for use by Local Government Officers*. DEH, Brisbane.
- Kanowski, J., Catterall, C. P., Freebody, K. and Harrison, D. A. (2008) *Monitoring Revegetation Projects for Biodiversity in Rainforest Landscapes. Toolkit Version 2*. Report to the Marine and Tropical Sciences Research Facility. Reef and Rainforest Research Centre Limited, Cairns.

In recognition of the above mentioned weed control guidelines and documents, an 'assisted natural regeneration' approach to weed control over the site must also adhere to the following principles:

1. <u>Target areas of least disturbance/weed infestation and progressively work towards areas of greater weed infestation.</u>

Under these circumstances the indigenous species have an advantage because their seed or spores are already in the ground and the natural environment favours the plants that have evolved in it (Bradley 1988). This method enables a significant reduction in follow-up weed maintenance and related costs because the regeneration is more likely to comprise a higher proportion of native species. It is noted that this method is the EPAs preferred method of weed control (DEH, 1999).

2. <u>Minimise the amount of soil disturbance to reduce the potential for a fresh weed invasion.</u>

Weeding will cause some disturbance to the existing soil structure and layers depending on weed methods utilised (i.e. hand removal). Disturbed soil should therefore always be returned as close as

possible to its original layer and firmed down. This includes the mulch which is the first line of defence against a fresh invasion (Bradley 1988).

3. Allow native plant regeneration to dictate the rate of weed removal

The regeneration of native species is inversely proportional to increasing weed growth and therefore weed control efforts should not automatically move into more degraded areas when less weed infested areas have been treated. It is often beneficial to wait for the less weed infested area to regenerate with significant native vegetation cover before continuing into more degraded areas. Complete clearing of all weed infested areas at once typically results in extensive follow up weed maintenance, as indicated in Figure 10 below, and therefore should be avoided.

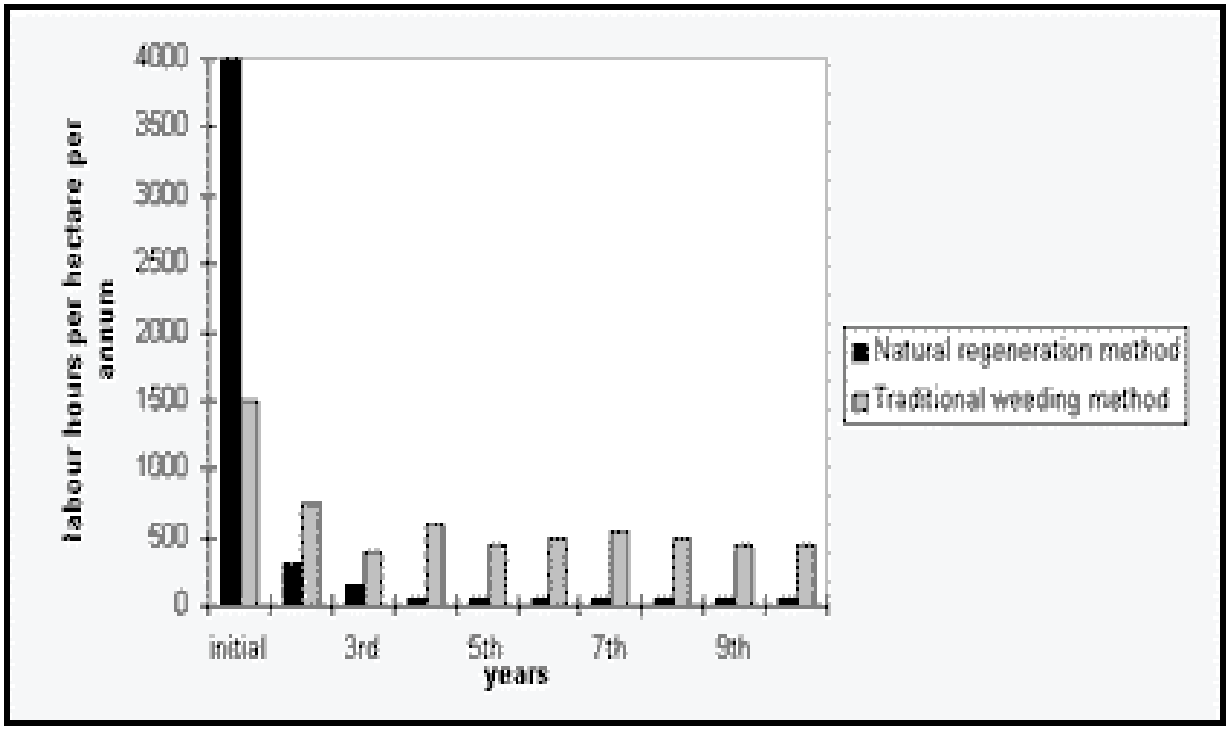


Figure 12: Labour Comparison between traditional weeding and natural regenertation methods (Source: Ku-ring-gai Park Department, NSW (Cited in Buchanan, 1989)

3.3.1 Weed control methods

This plan provides recommendations for the treatment of recorded and commonly occurring weed species over the site in Appendix 4 and 5. These treatment methods have been sourced from 'Common Weeds of Northern NSW Rainforest – A Practical Manual on their Identification and Control' (Big Scrub Rainforest Landcare Group) and the 'SEQ Ecological Restoration Framework Manual' (Cardno Chenoweth and Bushland Restoration Services).

Where a chemical weed treatment method is adopted, the following recommendations are made for spray application with knapsack or handgun equipment:

- The dilution rate is given as a ratio of herbicide volume to water volume.
- Adjust equipment to achieve an even spray pattern. Apply to ensure complete and uniform wetting of all foliage. For handgun equipment, a D6 spray tip (Spraying Systems Australia P/L) or equivalent, and an operating pressure of 400-700 kPa are recommended.

The following additional recommendations are made for weed control activities in general:

- All weed control must be undertaken by a suitably qualified Bush Regenerator.

- All environmental weeds (including garden/nursery escapees) must be controlled within the weed management areas, generally commencing with vine and ground layer weeds and progressing to mid storey and canopy woody weeds as conditions in the understorey stabilise.
- Where areas are spot-sprayed and/or hand weeded, weed material must be left in-situ to act as natural site mulch, unless such action presents an overwhelming risk of re-infestation.
- Spot-spraying must occur from areas that are dominated by native vegetation and extend into more weedy areas.
- Weed control (especially groundcover weed control) must be undertaken in a manner which does not promote erosion or instability of soil, especially in waterways or high velocity flow zones.
- Herbicide dye must be used to reduce the potential for over spraying or re-spraying of previously treated areas. If evidence of excessive spraying exists or if off target damage is evident, rehabilitation will be required to the satisfaction of Council to ensure all areas are stable and not at increased risk of erosion due to off target damage.
- All undesirable vine species must be treated by cutting the plant twice. Once at head height and then at ground level. Immediately after cutting at ground level herbicide must be applied using the cut, scrape and paint (CSP) method.

Best Practice Methods for Weed Control

Please note: (1) It is the responsibility of the herbicide user to hold an off-label permit (obtained from the National Registration Authority for Agricultural and Veterinary Chemicals) for herbicide use that is not consistent with conditions specified on the label; and (2) The methods and herbicide use rates provided below are current best practice methods. It is the responsibility of the operator to ensure methods used are current best practice and are suitable for the site and any environmental constraints experienced at the site.

Cut-scrape-paint

This weed control method applies to all woody shrubs, trees and some vines.

- Cut plant low to the ground at an angle.
- Apply Glyphosate immediately at the rate of 1 part Glyphosate to 1.5 parts water, with a paintbrush approximately 1.5 centimetres wide.
- Scrape sides lightly to reveal green tissue and apply the herbicide to the scraped area.
- Take care that the brush is not contaminated with soil.

Note - all seed that has high viability and longevity, e.g. *Senna spp*. and other members of the Fabaceae family, or plants with a high invasive potential, such as Umbrella Tree *Schefflera actinophylla*, must be removed from the parent and either composted on site or removed from the site.

Gouge-paint

This weed control method applies to those plant species that have a fleshy root system, such as rhizomes or large bulbs. It is particularly appropriate for the treatment of *Asparagus spp*.

- Gouge out sections of the fleshy base with a knife (if using on Asparagus, first cut the stems at shoulder height and also at the base).
- Apply 1 part Glyphosate to 1.5 parts water immediately, with a paint brush approximately 1.5 centimetres wide.

Stem Injection

This weed control method applies to all woody trees and shrubs with a diameter of about six to ten centimetres or greater.

- Drill a hole at an angle into the sap wood using an 8-10mm drill bit angle, Holes to be no >than 10cm apart.
- Apply herbicide (approx 4ml) immediately into the hole using a tree-injecting device (if using Glyphosate, apply undiluted or at the rate of 1 part Glyphosate to 1.5 parts water).

- Repeat this procedure at intervals around the circumference of the tree, as close to the ground as possible. Where the presence of a crotch angle makes this difficult, drill a hole above it. Note – one row of drill holes will be sufficient for trees with trunks of six to ten centimetres; larger trunk diameters will need correspondingly more.
- Treat all visible lateral roots as per dot point 1.

Scrape-paint

This weed control method is applicable to many species of vines where it is desirable to treat the vines intact, particularly those with aerial tubers such as Madeira Vine *Anredera cordifolia* or those which will propagate from segments, e.g. Cape Ivy *Delairia odorata*.

- Scrape the stem tissue on one side of the stem only for at least 20-30 centimetres if possible. Note on Madeira vine it is necessary to scrape heavily. Scrape as many sections of the stem as possible.
- Apply undiluted Glyphosate with a paintbrush.
- On stems that are thicker or horizontal, make a ditch into the stem with a knife and apply herbicide. Tubers and side roots should be treated the same way. Note - care must be taken not to sever the stem.

Spot Spraying

This weed control method is carried out using a 15 litre backpack spray unit with a modified spray nozzle that gives a solid spray pattern. Glyphosate is the main herbicide used with the addition of a marker dye. For plants that show some resistance (e.g. Madeira Vine) or where growing conditions are not optimal, an acidifying agent, LI700®, is added. Metsulfuron methyl can also be used for resistant species and grasses. It should be used with a surfactant, such as Agral® or Pulse®.

- Where both Glyphosate and Metsulfuron methyl it is important to mix the chemicals as recommended e.g. MM must be well mixed with water prior to adding to backpack.
- Dilution rates for Glyphosate and Metsulfuron methyl are in accordance with the manufacturer's recommendations and any variation requires a permit from the National Registration Authority.
- Dilution rates for Glyphosate to water for treatment of some weed species are provided below:
- Plants with more or less succulent leaves, e.g. Wandering Jew Tradescantia fluminensis, Madeira Vine Anredera cordifolia (autumn to winter is the suggested time for spraying these plants), Spider/Ribbon Plants Chlorophytum spp. etc - 1 part Glyphosate to 50 parts water plus 1.5g Metsulfuron methyl to 10 litres water + 2 ml Agral® or 20ml Pulse® to 10 litres water.
- Lantana Lantana camara - 1 part Glyphosate to 100 parts water
- Other soft-leaved plants, annuals and grasses - 1 part Glyphosate to 100 parts water
- Bitou Bush Chrysanthemoides monilifera subsp. rotundata - 1 part Glyphosate to 150 parts water to 1 part Glyphosate to 400 parts water
- Typical dilution rates for Metsulfuron methyl to water are - 1.5g Metsulfuron methyl to 10 litres water + 2 ml Agral® or 20ml Pulse® to 10 litres water.

Overspray

This weed control method is applicable to large, dense infestations of such plants as *Lantana camara*, where it is desirable to leave the dead plants intact to prevent erosion and over-exposure of large areas, protect native seedlings from predators such as wallabies, and avoid trampling by humans.

- Spray over the top of the infestation, using a weak solution of Glyphosate.
- Any native plants that may be under the weed will be protected by the foliage cover of the weed.
- Leave the sprayed plants intact so that native seedlings can establish under the shelter provided.
- The rate for overspraying of Lantana is 1 part Glyphosate to 100 parts water.
- Alternatively, weeds can be cut and flattened with bush-hooks or loppers and the subsequent regrowth sprayed with Glyphosate. In many cases it is preferable to overspray wherever practicable as this will cause less erosion and trampling of suppressed native plants, such as ferns and seedlings. However, handwork will be necessary to cut-scrape-paint any unsprayed Bitou Bush or Lantana that surrounds native plants.

Crowning

This weed control method is applicable to weeds which have their growing points below the surface of the ground (corms, bulbs, rhizomes, clumped or fibrous root systems, etc. e.g. *Asparagus* spp., and introduced grasses).

- Grasp the leaves or stems and hold them tightly so that the base of the plant is visible. Plants with sharp leaves or stems should be cut back first.
- Insert the knife close to the base of the plant at a slight angle, with the tip well under the root system.
- Cut through the roots close to the base. Depending on the size of the plant, two or more cuts may be needed to sever all the roots.
- Remove the plant. Make sure that the base of the plant where the roots begin is completely removed.

The following Table lists the weed removal techniques for recorded and locally present species.

Abbreviations:

CS&P = cut, scrape and paint
C&P = cut and paint
F/I = frill/stem-inject/spear or drill
S&P = scrape and paint
Numbers in brackets:

G = glyphosate dilution ratios, MM = metsulfuron-methyl dilution ratios
S = surfactant, e.g. LI 700
W = wetting agent, e.g. Agral, Pulse
O = denotes use of spray adjuvant, e.g. Codacide, Protec Plus

Table 7: Weed Removal Techniques

Scientific Name	Common Name	Recommended Treatment
Ageratina adenophora	Crofton Weed	Treatment as below: Plants: spot spray (G 100 mL/10 L + S or O, or MM 1-2g/10L + W or O). Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted. NOTE: No slashing of seeding crofton weed is to occur. If plant is seeding at any time during the management period, individual plants are sprayed as above or to be removed via hand (for recolonised and/or isolated plants) and bagged to prevent potential for seed spread via wind.
Ageratum houstonianum	Blue Billygoat Weed	Treatment as below: Plants: spot spray (G 100 mL/10 L + S or O). Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Asparagus aethiopicus	Asparagus Fern	Treatment as below: Initial treatment via hand removal using crowning technique and hanging off ground to dry. For successful weed control it is vital to cut out the entire central growing point. Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted. Plants: spot spray (Glyphosate + Metsulfuron Methyl 200mm Gly + 1.5g MM in 10L water A/S + D).
Baccharis halimifolia	Groundsel	Mechanical removal where located within designated earthworks and clearing zones. Elsewhere treatment as below:

Scientific Name	Common Name	Recommended Treatment
		Seedlings: hand-pull or CS&P (G1:15). Or spray (G200mL/10L + S or O). Trees: CS&P or F/I (G1:1). Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted NOTE: If groundsel is seeding at any time, individual plants are to be removed via hand and bagged to prevent seed spread via wind.
Bidens pilosa	Cobblers Pegs	Treatment as below: Hand pull seedlings or spot spray 1:50 Glyphosate + Surfactant + Colour Marking Dye or for better results spray 1:50 Glyphosate + 1.5g Metsulfuron methyl: 10L water + Spray adjuvant + Colour Marking Dye. Saplings CS&P Glyphosate1:1.5 + Colour Marking Dye. Trees stem inject 1: 1.5 Glyphosate + Colour Marking Dye. Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Cinnamomum camphora	Camphor Laurel	Treatment as below: Hand pull seedlings or spot spray 1:50 Glyphosate + Surfactant + Colour Marking Dye or for better results spray 1:50 Glyphosate + 1.5g Metsulfuron methyl: 10L water + Spray adjuvant + Colour Marking Dye. Saplings CS&P Glyphosate1:1.5 + Colour Marking Dye. Trees stem inject 1: 1.5 Glyphosate + Colour Marking Dye. Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Crassocephalum Crepidioides	Thickhead	Mechanical removal where located within designated earthworks and clearing zones. Elsewhere treatment as below: Spot spraying with Roundup Biactive [at a ratio of 1:100] is to occur. Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Cirsium vulgare	Thistle	Treatment as below: Spot spraying with Roundup Biactive [at a ratio of 1:100] is to occur. Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Conyza bonariensis	Fleabane	Treatment as below: Plants: spot spray (G 100 mL/10 L + S or O). Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Crassocephalum Crepidioides	Thickhead	Treatment as below: Spot spraying with Roundup Biactive [at a ratio of 1:100] is to occur. Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Crotalaria spp.	Rattlepod	Treatment as below: Spot spraying with Roundup Biactive [at a ratio of 1:100] or hand removal is recommended. Spot spraying is to ensure all foliage is wetted. Spot spraying of recolinised juveniles following 2-3 week period.
Hypochaeris radicata	Flatweed	Treatment as below: Spot spraying with Roundup Biactive [at a ratio of 1:100] is to occur. Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Ipomoea cairica	Coastal Morning Glory	Treatment as below: Vines: hand-pull or CS&P (1:1.5). Materials above head height to be left insitu where it will die and fall to the ground as natural mulch. Spot spray: (G 100 mL/10 L + S or O, or G 200 mL/10 L + MM 1.5 g/10 L + W or O).

Scientific Name	Common Name	Recommended Treatment
		Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Lantana camara	Lantana	Treatment as below: Lopper, then CS&P base 1:1.5 G Spot spray regrowth and overspray large infestations (G200mL/10L G + S or O). Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Ligustrum spp.	Privets	Treatment as below: Hand pull seedlings or spot spray 1:50 Glyphosate + Surfactant + Colour Marking Dye or for better results spray 1:50 Glyphosate + 1.5g Metsulfuron methyl: 10L water + Spray adjuvant + Colour Marking Dye. Saplings CS&P Glyphosate1:1.5 + Colour Marking Dye. Trees stem inject 1: 1.5 Glyphosate + Colour Marking Dye. Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Neonotonia wightii	White Glycine	Mechanical removal where located within designated earthworks and clearing zones. Elsewhere treatment as below: Vines: hand-pull or CS&P (1:1.5). Materials above head height to be left insitu where it will die and fall to the ground as natural mulch. Spot spray: (G 100 mL/10 L + S or O, or G 200 mL/10 L + MM 1.5 g/10 L + W or O). Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Ochna serrulata	Mickey Mouse Plant	Treatment as below: Spot spraying (Glyphosate + Metsulfuron Methyl 200mm Gly + 1.5g MM in 10L water A/S + D). Spot spraying is to ensure all foliage is wetted Follow-up spot spraying following 2-3 week period Scrape (lightly) and paint (juvenille) – undiluted Gly
Pinus elliottii	Slash Pine	Treatment as below: Mature trees located to be treated via stem injection which is to be undertaken with 5cm cuts at 10-15cm intervals around the tree in a brickwork pattern. This shall involve use of an applicator calibrated to deliver 1 or 2 mL of Roundup Biactive per cut. Cuts are to be made at an oblique angle to ensure penetration of the sapwood beneath the outer bark. Juvenile plants are to be treated by spot spraying Roundup Biactive [at a ratio of 1:50] or hand removal.
Ricinus communis	Castor Oil Plant	Treatment as below: Cut-stump treatment is to occur for mature stems. This will involve cutting the trunk at ground level and immediately swabbing the stump surface with Roundup Biactive. Spot spraying of recolinised juveniles with Roundup Biactive [at a ratio of 1:100] following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Schefflera actinophylla	Umbrella Tree	Treatment as below: Mature stems to be treated via Cut-stump method. This will involve cutting the trunk at ground level and immediately swabbing the stump surface with Roundup Biactive. Spot spraying of recolinised juveniles with Roundup Biactive [at a ratio of 1:100] following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Senna pendula var. glabrata	Easter Cassia	Treatment as below: Shrubs: CS&P (G1:1.5) Plants: hand-pull or spray (G 200 mL/10 L + S or O. Collect and bag seed pods. Follow-up spot spraying or hand removal of recolinised individuals following 2- 3 week period.

Scientific Name	Common Name	Recommended Treatment
Senecio madagascariensis	Fireweed	Treatment as below: Spot spraying with Roundup Biactive [at a ratio of 1:100] is to occur. Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Solanum mauritianum	Wild Tobacco	Treatment as below: Cut-stump treatment is to occur for mature stems. This will involve cutting the trunk at ground level and immediately swabbing the stump surface with Roundup Biactive. Spot spraying of recolinised juveniles with Roundup Biactive [at a ratio of 1:100] following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Solanum nigrum	Blackberry Nightshade	Treatment as below: Small plants and those within the groundlayer to be removed via spot spraying with Roundup Biactive [at a ratio of 1:100] or hand removal. Spot spraying is to ensure all foliage is wetted. Smothering infestations within shrub/tree layer are to be treated via cut stump treatment. Materials above head height to be left in-situ where it will die and fall to the ground as natural mulch.
Sphagneticola trilobata	Singapore Daisy	Treatment as below: Plants: spot spray (G 200 mL/10 L + MM 1.5g/10L + W or O). Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Taraxacum officinale	Dandelion	Treatment as below: Spot spraying with Roundup Biactive [at a ratio of 1:100] is to occur. Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Trifolium repens	White Clover	Treatment as below: Spot spraying with Roundup Biactive [at a ratio of 1:100] is to occur. Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Cynodon dactylon *Pennisetum clandestinum* *Chloris gayana* *Melinis minutiflora* *Melinis repens* *Paspalum spp.* *Setaria sphecalata* *etc.*	Exotic Grasses	Treatment as below: Spot spraying of clumps and hand removal of scattered individuals. Plants: spot spray (G 100 mL/10 L + S or O). Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted.
Verbena bonariensis	Purpletop	Mechanical removal where located within designated earthworks and clearing zones. Elsewhere treatment as below: Plants: spot spray (G 100 mL/10 L + S or O). Follow-up spot spraying or hand removal of recolinised individuals following 2-3 week period. Spot spraying is to ensure all foliage is wetted. Given low leaf surface area of this species, if isolated plants occur (i.e. small numbers, not within an area dominated by other weeds) they are to be removed via hand.

Recommended Application Technique For Spraying (Knapsack/Handgun Equipment)

The dilution rate is given as a ratio of herbicide volume to water volume. Adjust equipment to achieve an even spray pattern. Apply to ensure complete and uniform wetting of all foliage. For handgun equipment, a D6 spray tip (Spraying Systems Australia P/L) or equivalent, and an operating pressure of 400-700 kPa are recommended.

Additional Recommendations

- All weed control must be undertaken by a suitably qualified Bush regenerator or Bushland Restorator.

- All environmental weeds (including garden/nursery escapees) must be controlled within the weed management areas
- Where areas are spot-sprayed and/or hand weeded, weed material must be left in-situ to act as natural site mulch.
- Spot-spraying must occur from areas that are dominated by native vegetation and extend into more weedy areas.
- Weed control (especially groundcover weed control) must be undertaken in a manner which does not promote erosion or instability of soil, especially in waterways or high velocity flow zones.
- Herbicide dye must be used to reduce the potential for over spraying or re-spraying of previously treated areas. If evidence of excessive spraying exists or if off target damage is evident, rehabilitation will be required to the satisfaction of Council to ensure all areas are stable and not at increased risk of erosion due to off target damage.
- All undesirable vine species must be treated by cutting the plant twice. Once at head height and then at ground level. Immediately after cutting at ground level herbicide must be applied using the cut, scrape and paint method.

Referenced Material:

Mann, M. (2000) *Toxicological Impact of Agricultural Surfactants on Australian Frogs* (PHD Thesis). Curtin University of Technology, Perth
Nufarm Australia Limited (undated) Roundup Biactive Herbicide by Monsanto NRA Approval No. 48518/1102
Big Scrub Rainforest Landcare Group (2005) *Subtropical Rainforest Restoration: A Practical Manual and Data Source for Landcare Groups, Land Managers and Rainforest Regenerators*. BSRLG, Bangalow.
Chenoweth EPLA and Bushland Restoration Services (2012) *South East Queensland Ecological Restoration Framework: Manual.* Prepared on behalf of SEQ Catchments and South East Queensland Local Governments, Brisbane

Following site inspections, one area of priority weed management has been identified within the subject site (the designated rehabilitation zone). Immediate management of this area is required to reduce the potential of continued spread (as a result of a reduced propagule base) and to restore native floral species dominance to degraded areas and to increase the success rate of revegetation.

3.4 Revegetation/Regeneration Methods

In association with the progressive removal of the nominated weed species from within the future rehabilitation area, a revegetation/regeneration strategy should be selected to ensure that the newly weeded areas become established with native species.

It is suggested that the strategies of 'assisted natural regeneration' and 'reconstruction' are methods that would prove feasible and effective for portions of the rehabilitation area enhance the structure, function, dynamics and integrity of the pre-existing vegetation and the habitat it supports.

It is recommended that revegetation/revegetation of disturbed areas be undertaken on site for the following reasons:

- To maintain and improve the existing level of integrity of vegetation communities to be retained within the rehabilitation area
- To maintain and potentially increase floristic diversity currently exhibited within the rehabilitation area
- To ensure that degraded and managed areas regenerate with native endemic flora species
- To stabilise areas subjected to weed management
- To restore cover and habitat diversity for the faunal assemblage and provide connectivity for fauna movement

3.4.1 Revegetation Methods

Direct Planting

This technique is suitable for small-scale sequential revegetation of disturbed areas, and principally to increase the crown cover of native plants in the management zones. Direct planting is the most common method of revegetation but involves a higher cost than the 'assisted natural regeneration' approach due to greater resource inputs (i.e. plants, mulch, water, fertiliser, tree guards etc.) and follow up maintenance. It is also contended that natural regeneration typically establishes more readily than direct planting and minimises further disturbance to the management area. Nevertheless, the plantings are a compensatory measure and their installation should occur as follows:

1. Identify locations within the management area which are suitable for direct planting, for example bare areas of patches with low resilience and natural regeneration potential;
2. Ensure that planting locations are appropriately prepared prior to planting (refer below) including weed control and mulching;
3. Select native plant species to be installed and ensure that microclimate conditions at each planting location are suitable for the chosen species.

Planting schedule species have been selected from native species recorded on site and in the area.

4. Maintain and monitor the plantings, including watering, weed control, additional mulching, and keep ongoing records of plant establishment.

Prior to undertaking the compensatory planting, the following ground preparation works are to be undertaken:

- Remove all rubbish including any previously dumped vegetative material, building slabs etc. Any existing hollow logs and regenerating native plants are to be retained in-situ (if applicable);
- Erect fencing and signage to demarcate the management zones and avoid encroachment therein during construction;
- Undertake primary and follow up weed control within each planting location.

Following the preparation of planting locations and selection of suitable native plant species, the revegetation should be undertaken generally as illustrated in **Figure 12** below.

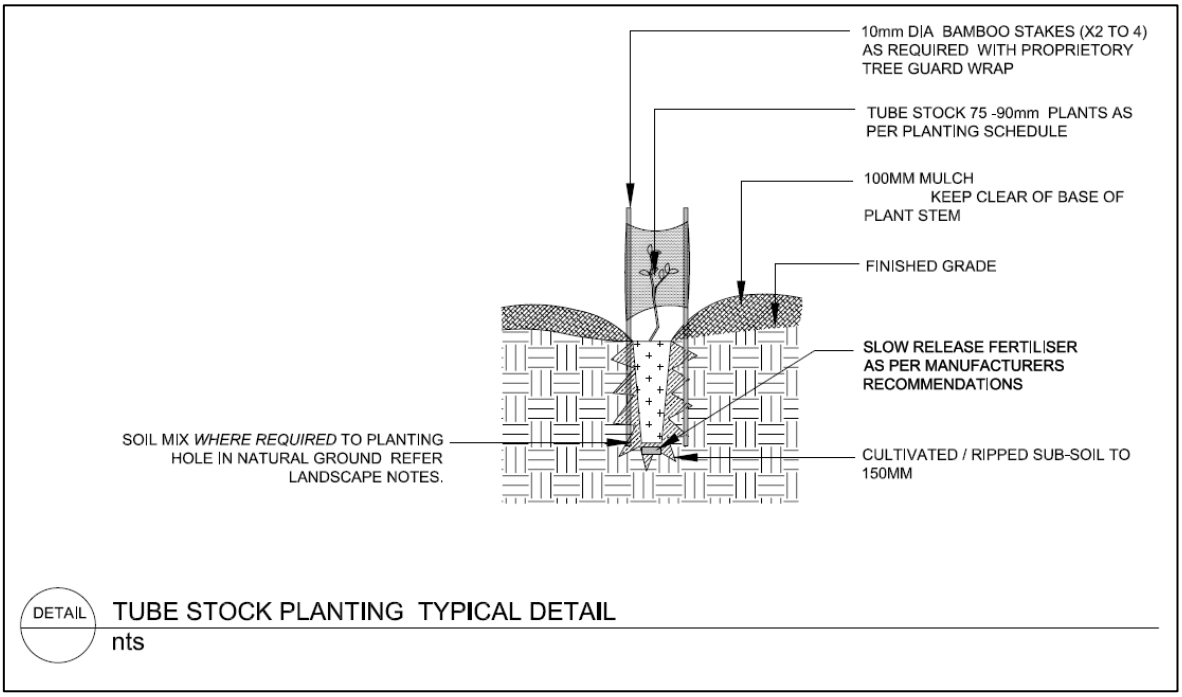


Figure 13: Typical Method for Installation of Tube Stock

3.5 Rehabilitation Species

A wide range of native species endemic to the area will be selected for the restoration areas. The aim of restoring these areas are to provide additional wet sclerophyll habitats within the site and to 'fill in the gaps' of the retained environmental areas and enhance corridor values.

The future planting will contain koala feed trees (i.e. *E. microcorys* and *E. propinqua*) and other native species typically occurring within local eucalypt forests. The aim of restoring this area is to provide additional wet sclerophyll habitats within the site, provide additional koala foraging resources and 'filling in the gap' between retained environmental areas.

3.6 Phytophthora Protocol

Phytophthora is a microscopic soil borne organism which causes environmental damage in natural ecosystems including root rot of a wide variety of native plant species. Where there is a risk of *Phytophthora*, bush Regeneration contractors/landscapers must follow hygiene related processes with equipment prior to entering the rehabilitation zone including:

- Cleaning off all dirt from boots on arrival and departure from site;
- Disinfect boots with Methylated Spirits;
- Scrub boots with stiff brush and follow similar principle for tools;
- Use of Methylated Spirits in spray bottle for secateurs, loppers, knifes, etc.;
- Plants identified to be infected by *Phytophthora* should be treated with a fungicide containing potassium phosphonate in accordance with best practice guidelines.

3.7 Myrtle Rust Protocol

Myrtle Rust (*Uredo rangelii*) is a newly described fungus that is closely related to the Eucalyptus/Guava rusts. It infects leaves of susceptible plants producing spore-filled lesions on young actively growing leaves, shoots, flower buds and fruits. Leaves may become buckled or twisted and may die as a result of infection. In association with revegetation on site all nursery stock introduced to the property must come only from plant nurseries following the hygiene protocols as set out within the Nursery Industry Myrtle Rust Management Plan 2011 for the prevention of spread of this fungus. This is considered crucial given the abundance of Scrub Turpentine (*Rhodamnia rubescens*) on site.

3.8 Fauna Habitat Enhancement

Enhancement of fauna habitat values within the rehabilitation area is proposed to increase the potential for native fauna to continue to utilise the area. This is to be achieved through the implementation of the following mechanisms:

- Foraging resources: identified food resources for various species will be incorporated within the rehabilitation area, in particular the following are recommended:
    - Koala foraging resources:
        - *Eucalyptus propinqua,*
        - *Eucalyptus resinifera,*
        - *Eucalyptus microcorys*.
    - Glossy Black Cockatoo foraging resources:
        - *Allocasuarina torulosa*
    - Threatened Fruit-dove/Rainforest Pigeon foraging resources:
        - Variety of fruit producing rainforest/riparian species
- Cover: Native understorey regeneration and additional revegetation will provide cover for small native species from predators whilst moving through the rehabilitation area;

- Salvage: hollow logs contained within the development footprint in areas to be cleared should be stockpiled and placed randomly within the ground cover layer of adjacent retained vegetation.

3.9 Maintenance

The following maintenance actions are necessary to achieve the restoration aim and objectives:

- Maintenance of rehabilitation areas will be undertaken over a number of year (actual duration to be confirmed within final rehabilitation plan);
- Plantings are to be regularly watered as necessary for a period of twelve (12) weeks following installation.
- Follow up weed control is to occur within the management zones monthly during winter and autumn and fortnightly during spring and summer;
- All fallen debris and hollow logs are to be retained in-situ within the management area to provide habitat for reptiles, amphibians and ground dwelling mammals and avifauna;
- Replanting shall occur where installed plants decline during the maintenance period in order to achieve the Performance Criteria in subsequent sections of this report.
- Plantings exhibiting signs of grazing (i.e. rabbits or wallabies) are to be protected with tree guards or exclusion fencing.
- Survey pegs demarcating the restoration area boundary are to be inspected annually and maintained or replaced as necessary;
- Areas of native vegetation proximate to the development footprint are to be fenced with orange safety mesh (CEP-FENCING-100 Safety Fence Orange, or similar) during the construction phase to reduce the risk of encroachment into the retained areas or damage by machinery etc. After all construction activities proximate to the subject area have concluded, the protective fencing may be removed.

It is noted that the following activities are prohibited within the retained vegetation areas of the rehabilitation zones (i.e. assisted regeneration areas):

- Clearing, lopping or removal of any native plants, whether existing at commencement of the rehabilitation project or planted pursuant to this plan;
- Erection of any fixtures or improvements, including buildings or structures without Council approval;
- Construction of any trails or paths;
- Depositing of any fill, soil, rock, rubbish, ashes, garbage, waste or other material foreign to the protected area;
- Performance of any other acts which may have detrimental impact on the values of the assisted regeneration areas.

4 Monitoring and Evaluation

The success of a regeneration project can be assessed by systematic visual monitoring of the management area. This need not be an overly time-consuming process and the data generated can then be used to evaluate the success of various treatments.

The parameters to be measured as part of the monitoring program include:

- Average height of plants within rehabilitation areas (height in metres for tree, shrub and groundcover species)
- Dominant species (qualitative description of dominant species within tree, shrub and ground layer stratum)
- Canopy cover %
- Canopy and upper strata species diversity
- Ground layer and leaf litter cover %
- General health of vegetation within rehabilitation areas
- Area of ground layer encumbered by weed species (in square metres)
- Planted specimen survival %
- Incidence of plant recruitment, both exotic and native (species and quantity estimates of new species noted [i.e. A = abundant, R = relatively common, I = isolated/scarce]
- Native fauna presence (native fauna species recorded via observation, track or trace during vegetation inspections are to be noted)

In addition to the measurement of the above monitoring parameters, photographic monitoring points will be established within the restoration management area. Photo monitoring points are to be identified and captured by the contractor prior to work commencing and follow up photo records obtained annually once restoration works have commenced. The photo points will provide a visual indication of plant growth (height and extent) and weed presence.

The contractor must also ensure that ongoing observation and recording of any threatened species within the management area is undertaken throughout the life of the project (as stated within the future management plan).

Vandalism and unauthorized clearing must be recorded in a register and include the following details:

- Date
- Location
- Incident type
- Scale
- Action taken and
- Result

Potential monitoring performas have been provided within **Appendix 1**. Note that form content has been adapted from Kanowski, J., Catterall, C. P., Freebody, K. and Harrison, D. A. (2008) *Monitoring Revegetation Projects for Biodiversity in Rainforest Landscapes. Toolkit Version 2*. Report to the Marine and Tropical Sciences Research Facility. Reef and Rainforest Research Centre Limited, Cairns.

4.1 Performance Criteria

The following performance criteria are examples of performance criterias which may be set within the future rehabilitation plan:

- The contractor undertaking regeneration works is to be a suitably qualified professional;
- Existing native vegetation to be retained where applicable (i.e. assisted regeneration management areas);
- All rubbish and debris is removed from the restoration zones;

- Primary treatment of all weeds within the rehabilitation zones is to occur by the end of year 3.
- All woody weeds, all exotic vines and all invasive plants within each management area are to have initial/primary treatment within three years of commencement of the rehabilitation plan for each management area (if the development is staged).
- The standard of weed control and management works within each management area is to be maintained or improved at year 4.
- Less than 10% of existing environmental weeds and no invasive plants are to be present within each management area at year 5.
- All weed treatment must be performed in a manner which does not promote erosion or instability of soil. For example, on steep slopes spot spraying of planting locations rather than blanket spraying of the entire management area. Follow up and ongoing weed control is to occur initially only around the plantings but incrementally progress outward over time as native canopy begins to establish and suppress exotic groundcovers and grasses.
- All weeds within the drip zones of native vegetation are to be treated to reduce competition and to increase opportunities for native plant regeneration;
- Public access to the restoration zone is to be restricted via the use of fencing and signage, and during routine monitoring is to be inspected for the following evidence of access related impacts:
  - Litter and/or rubbish dumping
  - Plant theft
  - Soil compaction
  - Fence or signage vandalism/removal
- >90% survival rate of planted stock is to be achieved over the five (5) year establishment period;
- Planted vegetation and assisted regeneration areas are to achieve average growth of >1m by year three and 1.5m by year five and cumulative cover of 60% by year 3
- An increase in native species recruitment (through natural processes) should be achieved at each annual reporting stage.
- Native plants to exhibit fair or healthy conditions:

Condition	Descriptor
Healthy	Leaves green, no abnormal leaf loss
Fair	Leaves green, some yellowing of leaves, but <20% of canopy affected
Poor	Many leaves yellow or brown, substantial reduction in canopy extent since last measurement
Dead	Leaves brown or absent, little of the canopy remaining

4.2 Corrective Actions

The following corrective actions are examples of corrective actions which may be implemented in instances of non-compliance with the performance requirements:

- If rubbish or litter is found within the regeneration zone it is to be immediately removed;
- Where weed re-establishment is noted additional removal/management works are to be instigated;
- Where planted specimens fail to strike or plantings do not achieve the set survival percentages then supplementary plantings are to be undertaken. Where it is considered that a particular species has failed due to non-suitability or repeated failure within the planting environment a suitable native plant replacement species is to be discussed with and approved by Council's ecologist;
- If regular increases in height and crown cover extend are not recorded within the monitoring period a horticulturalist/arborist is to be employed to identify likely causes and to recommend measures (i.e. fertiliser application, increased watering etc) to encourage increased growth.
- If retained or planted vegetation show signs of ill health (i.e. poor or dead), a horticulturalist/arborist is to be employed to identify likely causes and to recommend mitigation measures to improve regeneration conditions
- If access related impacts are evident the following actions are to be implemented:

- Removed/damaged plants is to be via planting the relevant module to the rehabilitation area/zone;
- If damaged to fencing or signage or the viewing platform is recorded the structures are to be repaired to pre-existing condition and Council notified regarding the recorded damage/vandalism.

- If retained trees show signs of ill health (i.e. poor or dead), a horticulturalist is to be contacted to identify likely causes and to recommend mitigation measures to improve conditions;
- If native vegetation has been damaged (either as a result of obvious illegal clearing or dieback) then the local Council is to be notified to investigate;

If regular increases in height and crown cover extend are not recorded within the first 12 months of the monitoring period a horticulturalist/bushland regenerator is to be employed to identify likely causes and to recommend measures (i.e. fertiliser application, watering, analysis of topsoil etc) to encourage increased growth or identify issues. It is to be noted that growth rates may have been limited by climatic, environmental, natural disaster or genetic reasons during this period and exhibited growth rates are to be considered in the context of external factors prior to recommending management measures;

If access related impacts are evident the following actions are to be implemented:

- The allotment owners are to be informally reminded that inappropriate recreational access is not suitable within the Regeneration Area;
- The condition of the fencing and signage is to be inspected and repaired where necessary (during building and construction);
- If damage continues Council is to be notified regarding enforcement issues.

N.B. In the event that adaptive management procedures are considered necessary throughout the course of the restoration program, any amendment to the management regime described within this document must be undertaken in consultation with Council's ecologist. Such procedures may include (but are not limited to) watering during drought, amendment of weed removal technique where unsuccessful for a given species, scarification of topsoil to reduce compaction, addition of fertiliser to poorly establishing areas etc. These measures will be considered in the context of plant species suitability on the site, with preference to those adapted and tolerant of the local environmental conditions.

4.3 Project Management

The following project management aspects are noted with respect to the implementation of the proposed rehabilitation plan and management actions described within this report:

- The contractor is to manage the restoration program within the designated management area and liaise with Tweed Shire Council
- The contractor is to be engaged for an individual contract period of no less than one (1) year.
- The responsibilities of the contractor include:
  - Implementing the Rehabilitation Plan;
  - Developing the work program for the rehabilitation zones;
  - Receiving feedback from the field team on issues associated with the restoration works, and
  - authorizing any appropriate changes to or deviation from the approved Rehabilitation Plan;
  - Training new employees and/or volunteers;
  - Providing advice concerning timing and integration of all external contracts associated with the Rehabilitation Plan;
  - Implementing Workplace Health and Safety (WHS) policies and procedures;
  - Ordering and maintaining equipment, planting stock and other necessary site resources;
  - Record keeping including identification of threatened species;
  - Monitoring the progress of restoration works over a certain period (to be stated within final plan);
  - Reporting as required by the Rehabilitation Plan;
  - Keeping informed on and implementing best practice bushland weed control and ecological restoration techniques; and

- Communication and liaison with members of the community where necessary.
- The developer/landowner is responsible for implementation of the Rehabilitation Plan for the designated establishment/maintenance period;
- Annual monitoring will be carried out by the contractor over the designated period. The regular monitoring will provide the contractor with information on the progress of the rehabilitation program and enable a review of implementation strategies. The contractor must identify any problems with implementation strategies or techniques and seek agreement from relevant parties to adapt or modify this plan accordingly.

4.4 Reporting

Progress reports over the restoration project duration is to be prepared which presents monitoring records and evaluates the extent to which the aims and objectives of the plan are being met. In addition to the results of ongoing monitoring, the report must also provide the following information:

- Progress on implementation of the Implementation Schedule;
- Monitoring results and compliance with performance indicators;
- Any changes in the Implementation Schedule as a result of adaptive management;
- Progress of ongoing site management issues;
- Any records of threatened flora and fauna species; and
- Recommendations regarding the on-going management of the site

5 Appendices

Appendix 1: Monitoring and Evaluation Performas
Appendix 2: NPWS Checklist for Bush Regeneration Activities

PLANIT CONSULTING

Attachment 1

Monitoring and Evaluation performas

FORM A: ROUTINE REHABILITATION MONITORING SHEET

General Management [entire management zone]

Has there been a fire since the last inspection?_____

Is there evidence of rubbish dumping within the rehabilitation zone?_____
_____

Is there evidence of plant theft within the rehabilitation zone?_____

Does it appear that the rehabilitation zone has been utilised for stockpiling, vehicle parking, building waste dumping or person traffic?_____
_____

If yes, acknowledge below what works were undertaken to rectify/restore and the date_____
_____
_____

Weeds [entire management zone]

Have any areas of weeds re-established within the rehabilitation zone since last visit?_____
_____

What species?_____
_____

What management was undertaken to eradicate these weeds?_____
_____
_____

If management was undertaken acknowledge that such was performed in accordance with the approved management plan. _____
_____

Vegetation regeneration/revegetation

Natural regeneration is occurring in (record height range estimate):

- Tree species _____
- Shrub species_____
- ground covers_____

What are the dominant species within each layer?

- Tree _____
_____
- Shrub _____ _____
_____
- ground covers_____
_____

Have you noticed any new native plant species since the last inspection?_____

If yes name the species or take a photograph_____

Acknowledge that the required routine photographs have been taken within the rehabilitation zone

Biodiversity Have you spotted native fauna within the rehabilitation zone during inspection? If yes, what types? Koala_____ Kangaroo/wallaby_____ Possoms/gliders_____ Small mammal (i.e. bandicoot, echidna) _____ Reptiles (i.e.snakes/lizards)_____ Birds of prey_____ Large nectar feeding birds (i.e. lorikeets, parrots, cockatoos)_____ Small tree and ground birds (i.e. finches, fairy wrens, treecreepers)____ Other_____	*Modifications* Have there been any structural additions (eg. new tracks, buildings) to the rehabilitation zone since the last visit? _____ _____ _____ _____ What actions were undertaken to remove any illegal modifications? _____ _____ Condition of safety fences - Good - Need minor repair - Poor (need replacement)	Are any of the following performance criteria exceeded or not achieved? Declared Weeds?_____ Extent of other Weeds?_____ Survival Rate of Plants?_____ Condition of Plants?_____ Canopy Coverage?_____ Tree, Small Tree & Shrub Diversity?_____ Groundcover Coverage?_____ General Coverage/Success?_____ If yes, what corrective action was performed (i.e. weed recolonisation was evident so routine management was performed as per Table 1; signage had fallen off the exclusion fence and was replaced; garden waste dumping was noted and removed, assisted regeneration was deemed unsuccessful and revegetation was undertaken etc). _____ _____ _____ _____ _____ _____ _____

FORM B: SITE CONDITION

(TO BE UNDERTAKEN ANNUALLY WITH ROUTINE PHOTO MONITORING, WEED MANAGEMENT AND REVIEW OF COMPLIANCE WITH PERFORMANCE CRITERIA)

Protocol for assessing site condition

The steps in condition assessment are listed below. A pro-forma for assessing site condition, based on this protocol, is provided on the following pages.

1. Obtain any previous condition assessment of the site, including maps, and other relevant documentation of the site.

2. Conduct a field inspection within the management area. Based on the table below determine whether all or part of the site is:

   - **OK** ('on track' towards target conditions, requires only routine maintenance);
   - **Uncertain** (significant problems identified, requires intervention); or
   - **Poor** (major problems identified, likely to fail without major intervention).

Make overall comments on the condition of the Vegetation Management Area (VMA).

Determine whether the conditions of the VMA have changed since last assessment, and comment on any changes.

Complete the table describing the VMA condition in detail. Where outcomes vary across the site, divide the VMA into zones ('A' = OK, 'B' = uncertain; 'C' = poor) and record outcomes for each zone separately. Comment on the attributes of each zone, particularly the factors that appear to be affecting outcomes, such as the canopy species mix and cover, regeneration/stocking rates and heights, weeds, disturbance or maintenance.

Draw a map of the VMA showing any variation in outcomes. Calculate the area of each zone and the proportion of the site in each one.

Make recommendations for maintenance, where relevant. The rating system is closely linked to maintenance requirements:

- Zone A = routine maintenance only required;
- Zone B = additional maintenance required, more than routine (need to describe);
- Zone C = major maintenance effort required (need to describe).

Note that what comprises 'routine' maintenance will often change (e.g. from regular spraying to spot-checking and control of weeds) as site works progress. However, should a major disturbance occur during the project timeframe, routine maintenance may revert to regular broad-scale weed control.

If desired, calculate an overall 'site condition' score. This score reflects the proportion of the site in good, uncertain or poor condition, and ranges from 0% (when the entire site is in poor condition) to 100% (when the entire site is 'on track' to target conditions).

Various intermediate scores are possible (e.g. a score of 50% could mean 50% of the site is 'OK' and the rest 'poor'; it could also mean that 40% is 'OK', 20% 'uncertain', and the rest 'poor').
To calculate the score, multiply the percentage of the site zoned as A, B or C by a suggested 'condition rating' for each zone: Zone A (OK) = 1; Zone B (uncertain) = 0.5; Zone C (poor) = 0), and add the products.

CRITERIA FOR ASSESSING CONDITION OF YOUNG REVEGETATED SITES, BEFORE INITIAL CANOPY CLOSURE.

Rating / zone	Status	Canopy cover	Ground cover	Problem weeds	Tree survival	Maintenance requirements
A	**OK** On track to target conditions	Developing well towards closed canopy	Leaf litter, mulch or soil around trees; grass/ weeds not suppressing tree growth (i.e. sparse around trees)	Not present or minor occurrence	**High** (at least 90%)	Routine maintenance only
B	**Uncertain** if will develop towards target conditions. Significant problems.	Not developing well towards closure, or outcomes are patchy	Grass/ weed cover sufficiently dense to suppress the growth of planted trees, at least in places	If present, have the potential to impede site developmen t	**Moderat e** (60-90%), or patchy	Extra effort required to fix problems, additional to routine maintenance
C	**Poor** Major problems. Likely to fail.	Poorly developed. Unlikely to achieve closure	Dense cover of grass/ weeds which is likely to strongly suppress tree growth	May be common, or likely to impede site developmen t	**Poor** (less than 60%)	Major effort required to address problems.

PLANIT CONSULTING

PROFORMA FOR ASSESSING SITE CONDITION

PROJECT DESCRIPTION *Note: where options are given, put an **'X'** next to the appropriate term(s):*

Project name:		**Project ID:**
Site name:		**Site ID:**
Type of on-grounds: 'Assisted Natural Regeneration' and 'Revegetation'	**Years since site commenced:**	**When was this site last assessed?**
Current assessment conducted by:	**Date of current assessment:**	
Overall comments on site condition:		
Has the condition of the site changed since last assessment? YES ….. *or* NO ….. *If Yes, briefly describe changes in this box, and provide details in table below.*		

DETAILED DESCRIPTION OF SITE CONDITION *Complete table annually, or if conditions have changed since last assessment. Also draw map.*

Rating/ zone	Area (ha)	% of site	Location and factors affecting outcomes	Canopy cover (%)	Ground cover	Problem weeds	Tree survival or Recruitment	Other comments	Suggested maintenance
A = OK on track towards target									(should be routine: describe if necessary)
B = Uncertain									
significant problems									(describe)
C = Poor major problems, likely to fail									(describe)
Overall Condition Score (ranges from 0-100%) *Multiply percentage of site occupied by each zone (A, B or C), by the condition rating for each zone (A = 1; B = 0.5; C = 0), and add the products: e.g. (70% x 1) + (20% x 0.5) + (10% x 0) = 80%*									…… %

MAP OF SITE CONDITION *Note: also describe the condition of the site (previous page).*

Draw a map of the site, showing variation in outcomes as zones (Zone A = OK, Zone B = Uncertain, Zone C = Poor).

PLANIT CONSULTING

Attachment 2

NPWS Checklist for Bush Regeneration Activities

NPWS Bush Regeneration Checklist

Checklist For Bush Regeneration Activities In The Habitat Of Threatened Species, Endangered Populations And Endangered Ecological Communities

Background
Threatened species, endangered populations and endangered ecological communities are protected in NSW under the *Biodiversity Conservation Act 2016* (BC Act).

It is an offence to "harm" or "pick" threatened species, populations or ecological communities, or cause "damage" to critical habitat or the habitat of threatened species, populations or ecological communities[1].

"Harm" refers to native fauna, and is defined as to:
hunt, shoot, poison, net, snare, spear, pursue, capture, trap, injure, or kill. "Pick" refers to native flora, and is defined as to:
gather, pluck, cut, pull up, destroy, poison, take, dig up, remove or injure the plant or any part of the plant.
"Damage" is not defined but the common dictionary definition would apply.

It is a defence to a prosecution if the action was:

- authorised in accordance with a Section 120 licence or a Section 132C licence under the *National Parks and Wildlife Act*;
- authorised in accordance with a development consent under the *Environmental Planning & Assessment Act 1979;* or
- authorised by or under the Rural Fires Act 1997, or the State Emergency and Rescue Management Act 1989.

Bush regeneration activities
Areas where bush regeneration is undertaken are often the habitat of threatened species or may be an endangered ecological community (e.g. Lowland Rainforest on Floodplain). It is understood that the intention of bush regeneration activities is to have a positive impact, however, there is a chance that these activities may adversely impact on threatened species, populations or ecological communities. This may occur where:

- a species (flora or fauna) is not known to exist on the site (e.g. cryptic species such as orchids);
- a species may be accidentally harmed or picked (e.g. by spray drift or accidental cutting).
- a species may be misidentified and is thought to be either an exotic or common native species and therefore may be removed or damaged;
- the requirements of the species, including habitat structure and components, may be temporarily adversely impacted (e.g. maintaining microclimatic conditions, connecting or sheltering habitat for fauna);

Licensing
Those undertaking bush regeneration activities may consider applying for a Section 132C licence under the NPW Act.

A Section 132C licence is issued where the NPWS considers that the proposed work is for conservation purposes.
Licence Conditions
Generally, licences are issued on an annual basis; however, shorter or longer term licences are

also issued where appropriate.

The NPWS may prohibit, condition, or limit bush regeneration works in some areas where it may affect research plots. Other licence conditions may be applied after consideration of population estimates, age structure, viability and health of the population or individuals.

The Bush Regeneration Checklist

The intention of the checklist is to ensure that bush regeneration activities will **not** have a significant impact on threatened species, populations or ecological communities and their habitats. Applicants should consider attaching this standard checklist to any Section 132C licence application to assist the NPWS in assessing the significance of the proposed activity. The NPWS will assume the applicant is prepared to adhere to the guidelines in the checklist where they form part of the licence application. Detail of any proposed work additional or contrary to that described in the checklist must be provided. The NPWS then assesses the likely significance of the impact of the proposal using the information provided in the licence application.

For the purposes of the checklist, bush regeneration is considered as all types of habitat restoration and may include such activities as manual weed removal, herbicide use, temporary damage to, or removal of native plants, planting, track work or maintenance and habitat removal or modification.

1. Threatened Species are listed under the *Biodiversity Conservation Act 2016*.

2. A Species Impact Statement must be prepared where a proposed activity is assessed as likely to have a significant impact on threatened species, populations or ecological communities.

3. The Wildlife Atlas is the NPWS statewide flora and fauna database.

NPWS Checklist For Bush Regeneration Activities:

Please Note:

1) The checklist is provided to facilitate licence applications and to draw attention to NPWS issues of concern.
2) There is no requirement to use the checklist when applying for a licence. You may alternatively choose to provide details of your project and an explanation of how you will ensure there will not be a significant impact on threatened species, their habitat or on endangered ecological communities.
3) If you provide a negative answer using the checklist this does not necessarily mean your application will be unsuccessful. You will however need to provide a satisfactory explanation as to why you do not wish to comply with the guideline and how you will ensure there is unlikely to be a significant impact on threatened species, their habitat or on endangered ecological communities.
4) You may wish your licence application to cover the collection of Voucher Herbarium Specimens and Plant Material for Identification. Guidelines to cover those activities are also attached.

ManagementPlanning:	**yes**	**no**	**more info attached**
The proposed activities will be in accordance with a management plan or site plan (map). *Please attach the plan or relevant sections of the plan or strategy to the licence application.*			
The project has been discussed with the relevant Landcare coordinator. *If not, provide details of any other professional advice you have sought, e.g. from a qualified bush regenerator.*			
A OEH Wildlife Atlas database search of a 5km radius of the site has been undertaken to identify threatened flora/fauna species known or likely to occur on the site.			
Prior to commencing any works on site, a permit or permission will be obtained from the relevant landowner(s) or land manager(s).			
Training and supervision:			
All workers carrying out bush regeneration and associated works will be supervised by a trained and experienced co-ordinator who has completed a recognised bush regeneration course (e.g. the Certificate of Bushland Regeneration) or a minimum of 2 years bush regeneration experience. *If 'yes', please provide below the name and qualifications of the co-ordinator.* Name: …… Qualifications/experience:……			
Other members of the group that have bush regeneration training or experience. Name: …… Qualifications/experience: …… Name: …… Qualifications/experience:…… Name: …… Qualifications/experience:……			

Name: …… Qualifications/experience:…… Name: …… Qualifications/experience:……			
All activities by workers will be regularly checked and approved by the co-ordinator.			
All workers will be informed of any threatened species or endangered ecological communities known from the area or which may occur in the area and the potential impacts of activities on these species/communities. *e.g. vines on the edge of a littoral rainforest remnant may protect the remnant from salt-bearing winds.*			
All workers have adequate weed and native plant identification skills. *i.e. all workers can identify and differentiate between weeds and native plants that occur on the site.*			
Workers will be familiar with the identifying features of threatened flora that are known or likely to occur in the project area. Where threatened species known from the area are similar to weed species, the distinguishing features between these will be understood prior to commencing the work.			
Access to sites			
All vehicular access to sites will be restricted to formed roads.			
Unnecessary damage to sites will be avoided. *e.g. avoid working in wet weather to lessen soil compaction.*			
To reduce the possibility of introducing plant diseases and weeds the following measures will be applied: 1. Secateurs will be sharp and cleaned with methylated spirits. 2. Footwear will be cleaned of loose soil and preferably treated with bleach between sites.			
Impacts on flora:			
Prior to any works being undertaken, the presence or absence of threatened flora will be determined by a thorough walking search of the area.			
All threatened flora will be tagged with highly visible flagging tape before work commences. If a number of individuals occur in a clump, the area should be marked out with flagging tape.			
Cutting or damaging of threatened flora will be avoided.			
All plants will be positively identified before they are removed (pulled, cut, poisoned etc).			
Weed removal within 2m of a threatened species will be undertaken by hand.			
Impacts on fauna:			
All workers will be aware of any threatened fauna that are known or likely to occur on site, and the potential impacts of the proposed activities on those species.			
The habitat and refuge potential of weeds and rubbish will be considered prior to removal. *e.g. Lantana can provide cover for threatened fauna such as the Bush-hen. Dead Lantana and poisoned Camphor Laurels should, where possible, be left in situ.*			
Weeds will be removed gradually in areas where an infestation is extensive. *Ideally, 50% of weeds that may provide habitat should be left until native plant species have re-established and provide alternative refuge.*			
Disturbance to, and removal of rocks, logs and other potential refuge sites will be avoided.			

A herbicide registered for use near waterways will be used within 5m of waterways.			
Herbicide spraying will be restricted to a distance greater than 5 metres from watercourses where threatened frogs are known or likely to occur and within a 10m radius of records of threatened frogs.			
A buffer of 1m along other watercourses will be maintained in which no herbicide will be sprayed.			
Care will be taken to minimise disturbance to shy or cryptic species. *e.g. the Marbled Frogmouth roosts in vine 'curtains'.*			
Care will be taken to minimise disturbance to the leaf litter layer.			
Reconstruction through revegetation: *This section does **not** address propagation or planting of threatened species – this activity would need to be separately addressed.*			
Seed collection or cuttings will be from species, populations or ecological communities other than those listed as threatened (unless licensed by NPWS).			
Prior to collecting any seed or cuttings permission will be obtained from the relevant landholder or manager of the site. *e.g. a licence is required to collect native plants on National Parks estate.*			
Seed collection from any one species will be limited to less than 10% of the available crop at that site.			
Seed collection from any individual plant will be limited to less than 10% of the available crop.			
If your seed source is used by other seed collectors, has consideration been given to minimising any cumulative impacts to the source plants? *Some individual plants are known as a reliable seed source and their seed is collected extensively. This may result in – (i) a reduction in genetic diversity); (ii) an impediment to the individual's natural ability to regenerate.*			
When collecting propagation material from a wild population, collection will be random from as many individuals as possible across the population to ensure a representative range of genetic material is collected. Collectors will avoid selection of propagation material on the basis of physical attributes. *e.g. tallest, most attractive, greatest amount of seed or*			
Plantings will be sourced from stock of local provenance.*			
Will propagated material collected only be used at the subject site? *i.e. excess material will only be used at other sites if it meets the provenance criteria.*			
A buffer of 5 metres will be maintained around all threatened plant specimens. Planting will only be undertaken outside this buffer. *This requirement is intended to protect the roots of the threatened plant from*			
damage or introduction of disease.			
Care will be taken to ensure that mulch does not introduce weeds or impede natural regeneration at the site.			
Care will be taken to ensure that weeds and/or phytopthora are not introduced to a site from pots of cultivated plants.			

Consideration will be given to the possible impacts of plantings on the ecological requirements of threatened species at the site *e.g. reduced light, competition, etc.*			
Species will be planted within their natural habitat and range. Plantings will be guided by the plants' local habitat preferences. *e.g. the species used for plantings along watercourses should be those that naturally occur in that habitat in your local area.*			
Herbicide use: ***A*** *permit from the National Registration Authority for Agricultural and Veterinary Chemicals PO Box E240, Kingston ACT 2604 may be required for herbicide use that is not consistent with conditions specified on the label.*			
A buffer of 2m will be maintained around all threatened plant specimens. Herbicide use will only be undertaken outside this buffer.			
Herbicide use will cease where there are any signs of threatened species being affected by herbicide. *e.g. browning off, wilting, deformed growth.*			
All herbicide spray operators will be capable of undertaking precise and effective weed control.			
Spray will be directed away from threatened flora.			
Herbicide will only be sprayed in suitable weather conditions when the impact of spray drift (windy) or run-off (wet) on threatened flora is minimised.			
Marker dyes e.g. white field marker' will be mixed with herbicide before use. *Marker dye enables the worker to see where the spray is landing.*			
Reporting and data records:			
Any new records of threatened species will be provided within three months to NPWS. These records will be in a format appropriate for entry into the Wildlife Atlas, once identification of a threatened species is confirmed by a recognised authority. *Wildlife Atlas cards available on request.*			

*Local provenance species should be regarded as those species propagated from material that has been collected from a natural wild population as close as possible to a site. For example, within the local catchment – which may be based on a local creek.
Please sign below, keep a copy for your records and attach all original pages of checklist, and any additional information, to your application form.

I, the undersigned, agree that the proposed bush regeneration activities are in accordance with all items checked above, additional information attached and the licence application form.

Name (please print) _____ _____ Signature _____ Date

Further reading

Buchanan, R. (1989) *Bush Regeneration: Recovering Australian Landscapes*. TAFE Student Learning publication, Sydney.

Buchanan, R. (1992) "Site assessment – a vital part of bush regeneration" in *Urban Bushland in Western Sydney*. Seminar Proceedings, Nature Conservation Council of NSW, 1992.

FloraBank (1999) *Guidelines 5: Seed collection from woody plants for local revegetation*. FloraBank, ACT.

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rehabilitation of indigenous vegetation. Greening Australia NSW, Sydney.

Harden, G. (1990-1993; 2002) Flora of NSW, Vols 1-4. University of NSW Press, Kensington.

Joseph, R. (1999) An integrated, systematic approach to rainforest remnant restoration. In *Rainforest Remnants – A Decade of Growth*. Proceedings of a conference on rainforest regeneration., NSW National Parks and Wildlife Service, Alstonville.

McDonald, T. (1993) Strategic plans for bush regeneration. in *Bushland in Our Cities and Suburbs Part 1: Making Planning Work*. Seminar Proceedings, Nature Conservation Council of NSW, 1993.

McDonald, T. (1994) What are we doing with ecosystem resilience and the restoration of damaged plant communities. in *Bushland in Our Cities and Suburbs Part 2: Making Bush Regeneration Work*. Seminar Proceedings, Nature Conservation Council of NSW, 1994.

NSW National Parks and Wildlife Service. (2000) *Threatened species of the lower north coast of NSW*. NSW NPWS, Coffs Harbour

NSW National Parks and Wildlife Service. (2002*) Threatened species of the upper north coast of NSW*. Vol 1. Fauna. Vol 2. Flora. NSW NPWS, Coffs Harbour

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Appendix 7: BAM Vegetation Integrity Plot Survey Data Sheets

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	08 / 03 / 18	Nightcap	PCT 1073 Zone 1	Tomislav Rados & Graham Dart			
Zone 56	Datum MGA	Plot ID	T1	Plot dimensions	20m x 50m	Photos	Yes
Easting 521687	Northing 6850848	IBRA region	South East Queensland	Midline bearing from 0 m	43	Magnetic °	

Vegetation Class	North Coast Wet Sclerophyll Forests		Confidence: H
Plant Community Type	1073	EEC: No	Confidence: H

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	Trees	10
	Shrubs	6
	Grasses etc.	4
	Forbs	4
	Ferns	0
	Other	3
Sum of **Cover** of native vascular plants by growth form group	Trees	47.1
	Shrubs	12.6
	Grasses etc.	61.1
	Forbs	30.8
	Ferns	0
	Other	0.7
High Threat Weed cover		0

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	No	
50 – 79 cm	Yes	1
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	31.7m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	60	65	70	96	92	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	76.6																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness			
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	08 / 03 / 18	Nightcap	T1	Tomislav Rados & Graham Dart

GF Code	*Top 3 native species in each growth form group: Full species name mandatory* *All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
T	1 Acacia melanoxylon	N	0.5	3		
T	2 Allocasuarina torulosa	N	2	3		
T	3 Araucaria cunninghamii	N	0.1	1		
S	4 Archirhodomyrtus beckleri	N	2	3		
S	5 Callistemon salignus	N	0.5	1		
L	6 Cissus hypoglauca	N	0.1	1		
T	7 Corymbia intermedia	N	10			
F	8 Desmodium rhytidophyllum	N	0.2	7		
S	9 Dodonaea spp.	N	0.1	1		
T	10 Elaeocarpus obovatus	N	0.5	2		
G	11 Entolasia stricta	N	1	15		
T	12 Eucalyptus acmenoides	N	2	1		
T	13 Eucalyptus carnea	N	10			
T	14 Eucalyptus microcorys	N	15			
T	15 Eucalyptus resinifera	N	15			
L	16 Glycine clandestina	N	0.4	4		
L	17 Hibbertia scandens	N	0.2	1		
G	18 Imperata cylindrica	N	0.1	1		
Z	19 Leucopogon juniperinus	N	5			
R	20 Lomandra confertifolia	N	30			
R	21 Lomandra filiformis	N	30			
S	22 Persoonia stradbrokensis	N	2	6		
F	23 Pomax umbellata	N	0.1	1		
F	24 Pratia purpurascens	N	0.5	20		
F	25 Pteridium esculentum	N	30			
T	26 Trochocarpa laurina	N	2	3		
S	27 Zieria smithii	N	3	25		
	28					
	29					
	30					
	31					
	32					
	33					
	34					
	35					
	36					
	37					
	38					
	39					
	40					

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	08 / 03 / 18	Nightcap	PCT 1073 Zone 1	Tomislav Rados & Graham Dart			
Zone 56	Datum MGA	Plot ID	T2	Plot dimensions	20m x 50m	Photos	Yes
Easting 521356	Northing 6850287	IBRA region	South East Queensland	Midline bearing from 0 m	93		Magnetic °

Vegetation Class	North Coast Wet Sclerophyll Forests		Confidence: H
Plant Community Type	1073	EEC: No	Confidence: H

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	Trees	10
	Shrubs	6
	Grasses etc.	2
	Forbs	1
	Ferns	2
	Other	7
Sum of **Cover** of native vascular plants by growth form group	Trees	120.4
	Shrubs	39.3
	Grasses etc.	2.1
	Forbs	0.1
	Ferns	8.1
	Other	0.8
High Threat Weed cover		0

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	3	3
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	102.6m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	98	95	99	90	96	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	95.6																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness			
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	08 / 03 / 18	Nightcap	T2	Tomislav Rados & Graham Dart

GF Code	*Top 3 native species in each growth form group: Full species name mandatory* *All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
S	1 Acacia spp.	N	0.1	1		
S	2 Acronychia spp.	N	1	2		
E	3 Adiantum aethiopicum	N	0.1	1		
T	4 Allocasuarina torulosa	N	10			
T	5 Alphitonia excelsa	N	0.5	2		
S	6 Archirohodomyrtus beckleri	N	20			
E	7 Blechnum cartilagineum	N	8			
T	8 Corymbia intermedia	N	20			
T	9 Cryptocarya glaucescens	N	1	4		
T	10 Cryptocarya microneura	N	0.5	1		
S	11 Cryptocarya rigida	N	0.5	3		
L	12 Dioscorea transversa	N	0.1	1		
S	13 Elaeocarpus reticulatus	N	15			
L	14 Embelia australiana	N	0.1	1		
T	15 Eucalyptus microcorys	N	75			
S	16 Eupomatia laurina	N	0.2	1		
L	17 Geitonoplesium cymosum	N	0.1	1		
T	18 Guioa semiglauca	N	0.1	1		
L	19 Hibbertia scandens	N	0.1	3		
T	20 Jagera pseudorhus var. pseudorhus	N	0.2	2		
Z	21 Leucopogon juniperinus	N	0.1	1		
R	22 Lomandra confertifolia	N	2	6		
S	23 Meiogyne stenopetala subsp. stenopetala	N	0.2	1		
S	24 Myrsine variabilis	N	0.5	2		
D	25 Ottochloa gracillima	N	0.1	10		
T	26 Polyscias elegans	N	0.1	1		
F	27 Pseuderanthemum variable	N	0.1	100		
S	28 Rhodamnia rubescens	N	1	1		
L	29 Smilax australis	N	0.2	3		
L	30 Stephania japonica	N	0.1	1		
T	31 Syncarpia glomulifera	N	5	1		
S	32 Synoum glandulosum subsp. glandulosum	N	0.5	2		
T	33 Trochocarpa laurina	N	8			
L	34 Trophis scandens	N	0.1	1		
S	35 Wilkiea huegeliana	N	0.1	1		
S	36 Zieria smithii	N	0.1	7		
	37					
	38					
	39					
	40					

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 3

		Survey Name	Zone ID	Recorders			
Date	08/03/2018	Nightcap	PCT 1073 Zone 1	TR & GD			
Zone 56	Datum MGAZ	**Plot ID**	T3	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 522453	Northing 6851206	**IBRA region**	SEQLD	**Midline bearing from 0 m**	222º		

Vegetation Class	North Coast Wet Sclerophyll Forests		Confidence: (H) M L
Plant Community Type	1073	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	15
	Shrubs	9
	Grasses etc.	5
	Forbs	4
	Ferns	1
	Other	5
Sum of **Cover** of native vascular plants by growth form group	**Trees**	86
	Shrubs	13
	Grasses etc.	63.2
	Forbs	2.7
	Ferns	0.1
	Other	0.5
High Threat Weed cover		17

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	3	1
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	62m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	95	98	90	98	99	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	96																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	1	O	Previous felling/logging
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	2	NR	Exotic grasses and lantana common.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 3		Survey Name	Plot Identifier	Recorders
Date	08/03/2018	Nightcap	T3	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	0.1	1		
Fern (EG)	*Adiantum aethiopicum*	N	0.1	1		
Tree (TG)	*Allocasuarina torulosa*	N	30			
Tree (TG)	*Alphitonia excelsa*	N	0.2	2		
Tree (TG)	*Archirhodomyrtus beckleri*	N	0.1	1		
Tree (TG)	*Breynia oblongifolia*	N	0.5	6		
Tree (TG)	*Corymbia intermedia*	N	3	4		
Tree (TG)	*Cupaniopsis parvifolia*	N	0.5	1		
Other (OG)	*Dendrobium spp.*	N	0.1	3		
Shrub (SG)	*Denhamia silvestris*	N	4	30		
Forb (F)	*Desmodium rhytidophyllum*	N	0.1	3		
Forb (F)	*Dianella revoluta*	N	2	15		
Grass& Grass-like (GG)	*Entolasia stricta*	N	0.2	20		
Tree (TG)	*Eucalyptus carnea*	N	3	7		
Tree (TG)	*Eucalyptus microcorys*	N	4	2		
Tree (TG)	*Eucalyptus propinqua*	N	40			
Grass& Grass-like (GG)	*Gahnia sieberiana*	N	7			
Other (OG)	*Geitonoplesium cymosum*	N	0.1	1		
Tree (TG)	*Glochidion ferdinandi*	N	0.2	3		
Other (OG)	*Glycine clandestina*	N	0.1	1		
Grass& Grass-like (GG)	*Imperata cylindrica*	N	6			
Tree (TG)	*Jagera pseudorhus var. pseudorhus*	N	0.2	3		
-	*Lantana camara*	HTE	15			
Shrub (SG)	*Leucopogon juniperinus*	N	5			
Grass& Grass-like (GG)	*Lomandra confertifolia*	N	25			
Grass& Grass-like (GG)	*Lomandra filiformis*	N	25			
Other (OG)	*Maclura cochinchinensis*	N	0.1	1		
Shrub (SG)	*Myrsine variabilis*	N	0.1	1		
Forb (F)	*Oxalis chnoodes*	N	0.1	1		
Shrub (SG)	*Ozothamnus diosmifolius*	N	3	10		
-	*Paspalum dilatatum*	HTE	2	100		
Shrub (SG)	*Persoonia adenantha*	N	0.5	4		
Tree (TG)	*Polyscias elegans*	N	0.2	3		
Forb (F)	*Pratia purpurascens*	N	0.5	400		
Shrub (SG)	*Psychotria loniceroides*	N	0.1	1		
Shrub (SG)	*Rubus moluccanus var. moluccanus*	N	0.1	1		
-	*Senna septemtrionalis*	E	0.1	1		
Other (OG)	*Smilax australis*	N	0.1	1		
Tree (TG)	*Syncarpia glomulifera*	N	3	6		

400 m² plot: Sheet 3 of 3		Survey Name	Plot Identifier	Recorders
Date	08/03/2018	Nightcap	T3	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Trochocarpa laurina*	N	1	3		
Shrub (SG)	*Wikstroemia indica*	N	0.1	1		
Shrub (SG)	*Zieria smithii*	N	0.1	1		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.
Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*
Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	20/03/2018	Nightcap	PCT 1073 Zone 1	TR & GD			
Zone 56	Datum MGAZ	**Plot ID**	T4	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 518697	Northing 6849825	**IBRA region**	SEQLD	**Midline bearing from 0 m**	351º		

Vegetation Class	North Coast Wet Sclerophyll Forests		Confidence: (H) M L
Plant Community Type	1073	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	13
	Shrubs	9
	Grasses etc.	2
	Forbs	5
	Ferns	1
	Other	7
Sum of **Cover** of native vascular plants by growth form group	**Trees**	42
	Shrubs	7.8
	Grasses etc.	4.2
	Forbs	2.8
	Ferns	0.5
	Other	7.5
High Threat Weed cover		4.1

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	4	1
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	46.70m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	**Litter cover (%)**					**Bare ground cover (%)**					**Cryptogam cover (%)**					**Rock cover (%)**				
Subplot score (% in each)	98	95	98	95	95	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	96.2																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	**Severity code**	**Age code**	Observational evidence:
Clearing (inc. logging)	1	O	Previous felling/logging
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	1	NR	Low
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	20/03/2018	Nightcap	T4	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
T	*Acacia melanoxylon*	N	5			
F	*Alpinia caerulea*	N	2	7		
T	*Araucaria cunninghamii*	N	0.1	1		
S	*Breynia oblongifolia*	N	5			
T	*Clerodendrum tomentosum*	N	0.1	1		
T	*Corymbia intermedia*	N	4	3		
T	*Cryptocarya microneura*	N	0.5	1		
S	*Denhamia silvestris*	N	0.1	2		
F	*Desmodium rhytidophyllum*	N	0.1	30		
F	*Dianella revoluta*	N	0.1	1		
L	*Dioscorea transversa*	N	1	15		
L	*Echinostephia aculeata*	N	0.1	2		
T	*Eucalyptus acmenoides*	N	10			
T	*Eucalyptus microcorys*	N	10			
T	*Eucalyptus saligna*	N	5	2		
T	*Euroschinus falcatus var. falcatus*	N	4	10		
L	*Glycine clandestina*	N	0.1	50		
T	*Guioa semiglauca*	N	1	2		
S	*Hibiscus spendens*	N	0.1	1		
E	*Hypolepis muelleri*	N	0.5	20		
-	*Lantana camara*	HTE	4	20		
R	*Lomandra longifolia*	N	4	40		
L	*Maclura cochinchinensis*	N	0.1	1		
D	*Ottochloa gracillima*	N	0.2	100		
L	*Parsonsia straminea*	N	0.1	1		
-	*Paspalum dilatatum*	HTE	0.1	5		
S	*Pilidiostigma glabrum*	N	0.1	2		
T	*Polyscias elegans*	N	0.1	2		
F	*Pratia purpurascens*	N	0.1	50		
F	*Pseuderanthemum variabile*	N	0.5	200		
S	*Rhodamnia rubescens*	N	0.2	2		
S	*Rubus moluccanus var. moluccanus*	N	0.1	1		
L	*Smilax australis*	N	6			
S	*Solanum hapalum*	N	2	14		
T	*Syncarpia glomulifera*	N	2	2		
S	*Syzygium oleosum*	N	0.1	1		
-	*Tephrosia glomeruliflora*	E	0.5	4		
T	*Toona ciliata*	N	0.2	1		
L	*Trophis scandens*	N	0.1	4		
S	*Wikstroemia indica*	N	0.1	2		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 3

		Survey Name	Zone ID	Recorders			
Date	20/03/2018	Nightcap	PCT 1073 Zone 1	TR & GD			
Zone 56	Datum MGAZ	**Plot ID**	T5	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 520207	Northing 6852955	**IBRA region**	SEQLD	**Midline bearing from 0 m**	351º		

Vegetation Class	North Coast Wet Sclerophyll Forests		Confidence: (H) M L
Plant Community Type	1073	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	20
	Shrubs	11
	Grasses etc.	5
	Forbs	4
	Ferns	3
	Other	11
Sum of **Cover** of native vascular plants by growth form group	**Trees**	69.2
	Shrubs	18.7
	Grasses etc.	1.7
	Forbs	3.7
	Ferns	0.7
	Other	4.9
High Threat Weed cover		5

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	3	2
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	117.90m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	98	90	99	95	95	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	95.4																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	1	O	Previous felling/logging present
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	1	NR	Low. Patches of Lantana present
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 3		Survey Name	Plot Identifier	Recorders
Date	20/03/2018	Nightcap	T5	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	0.5	2		
Tree (TG)	*Adiantum hispidulum*	N	0.1	1		
Tree (TG)	*Allocasuarina torulosa*	N	5			
Forb (F)	*Alpinia caerulea*	N	3	20		
Shrub (SG)	*Archirhodomyrtus beckleri*	N	0.2	3		
Other (OG)	*Austrosteenisia glabristyla*	N	1	5		
Fern (EG)	*Blechnum cartilagineum*	N	0.1	1		
Shrub (SG)	*Breynia oblongifolia*	N	0.1	1		
Other (OG)	*Calamus muelleri*	N	1	4		
Other (OG)	*Celastrus subspicata*	N	0.1	1		
Other (OG)	*Cissus antarctica*	N	2	10		
Tree (TG)	*Corymbia intermedia*	N	4	5		
Tree (TG)	*Cryptocarya glaucescens*	N	0.1	2		
Shrub (SG)	*Cryptocarya rigida*	N	0.2	5		
Grass& Grass-like (GG)	*Cymbopogon refractus*	N	0.1	10		
Shrub (SG)	*Denhamia silvestris*	N	5			
Forb (F)	*Dianella revoluta*	N	0.5	6		
Other (OG)	*Dioscorea transversa*	N	0.2	20		
Tree (TG)	*Diospyros pentamera*	N	0.1	1		
Tree (TG)	*Endiandra discolor*	N	0.5	1		
Grass& Grass-like (GG)	*Entolasia stricta*	N	0.1	3		
Tree (TG)	*Eucalyptus acmenoides*	N	25			
Tree (TG)	*Eucalyptus microcorys*	N	6			
Tree (TG)	*Eucalyptus siderophloia*	N	2	1		
Shrub (SG)	*Eupomatia laurina*	N	3	6		
Tree (TG)	*Euroschinus falcatus var. falcatus*	N	6			
Other (OG)	*Geitonoplesium cymosum*	N	0.1	1		
Tree (TG)	*Geissois benthamiana*	N	1	1		
Tree (TG)	*Glochidion ferdinandi*	N	0.1	1		
Other (OG)	*Glycine clandestina*	N	0.1	5		
Tree (TG)	*Guioa semiglauca*	N	4	7		
Tree (TG)	*Ficus spp.*	N	0.2	1		
Shrub (SG)	*Hovea acutifolia*	N	1	20		
Fern (EG)	*Hypolepis muelleri*	N	0.5	30		
-	*Lantana camara*	HTE	5			
Shrub (SG)	*Leucopogon juniperinus*	N	0.1	5		
Grass& Grass-like (GG)	*Lomandra longifolia*	N	0.5	10		
Grass& Grass-like (GG)	*Lomandra spp.*	N	0.5	30		
Tree (TG)	*Lophostemon confertus*	N	0.5	1		
Other (OG)	*Maclura cochinchinensis*	N	0.1	1		
Other (OG)	*Morinda jasminoides*	N	0.1	3		

400 m² plot: Sheet 3 of 3		Survey Name	Plot Identifier	Recorders
Date	20/03/2018	Nightcap	T5	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Neolitsea dealbata*	N	1	4		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.5	200		
Other (OG)	*Pandorea pandorana*	N	0.1	1		
Shrub (SG)	*Pilidiostigma glabrum*	N	0.1	2		
Shrub (SG)	*Pittosporum multiflorum*	N	1	5		
Tree (TG)	*Polyscias elegans*	N	0.1	2		
Forb (F)	*Pratia purpurascens*	N	0.1	50		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	100		
Fern (EG)	*Pteridium esculentum*	N	0.1	3		
Other (OG)	*Smilax australis*	N	0.1	5		
Shrub (SG)	*Solanum hapalum*	N	3	60		
Tree (TG)	*Syncarpia glomulifera*	N	10			
Shrub (SG)	*Synoum glandulosum subsp. glandulosum*	N	5			
Tree (TG)	*Trochocarpa laurina*	N	3	15		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM SITE FIELD SURVEY FORM				SITE SHEET NUMB	1
		SURVEY/PROJECT NAM	ZONE ID	RECORDERS	
DATE	20/9/18	NIGHTCAP	PCT 1032 Zone 1	GD/TR	
ZONE/DATUM	MGAZ56	PLOT ID	T6	PLOT DIMENTIONS	20MX50M
EASTING	NORTHING	IBRA REGION		MIDLINE BEARING	280
520002	6853010	SEQLD		PHOTOS TAKEN	YES
VEGETATION CLASS		Subtropical Rainforest		CONFIDENCE:	H
PCT	1032	EEC:	YES	CONFIDENCE:	H

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		SUM VALUES	DBH CM	# TREES COUNT	# STEMS WITH HOLLOWS
Count of **Native Richness**	Trees	16	80+		
	Shrubs	13	50-79	1	
	Grasses etc.	3	30-49	YES	0
	Forbs	1	20-29	YES	
	Ferns	4	10-19	YES	
	Other	10	5-9	YES	
Sum of **Cover** of native vascular plants by growth form group	Trees	32.3	<5	YES	
	Shrubs	4.6	Length of Logs (m), (=> 10cm dia., >50cm in length)		224
	Grasses etc.	1.2			
	Forbs	0.5			
	Ferns	4.9			
	Other	78.9			
High Threat Weed **cover**		1			

Counts apply when the number of tree stems within a class size is =<10. Estimates can be used when >10 (eg 10, 20, 30, 100, 200, 300).

For a multi-stemmed tree, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Subplot score (% in each)	Average of the 5 subplots
Litter cover %	95	92.2
	97	
	95	
	94	
	80	
Bare ground cover %	0	
	0	
	0	
	0	
	0	
Cryptogram cover %	0	
	0	
	0	
	0	
	0	
Rock cover %	0	
	0	
	0	
	0	
	0	

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter).

Assessors **may** also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)					
Morphological Type		Landform Element		Landform Pattern	
Lithology		Soil Surface Texture		Soil Colour	
Slope		Aspect		Site Drainage	
Microrelief		Soil Depth		Distance to nearest water and type	

Plot Disturbance	Severity Code	Age Code	Observational Evidence
Clearing (inc. logging)	1	NR	previous felling/logging
Cultivation (inc. pasture)			
Soil erosion	1	NR	minor erosion. Gully
Firewood/CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	0	O	low
Other			

Severity: 0 = no evidence, 1 = light, 2 = moderate, 3 = severe

Age: R= recent, NR = Not Recent (3-10years), O=Old (>10 years)

400M2 PLOT SHEET 2	Date:	Survey Name	Plot Identifier	Recorders
	20/9/18	NIGHTCAP	T6	GD/TR

GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	SPECIES IF AUTOFILL UNAVAILABLE	Native, Exotic or High Threat Exotic	Cover	Abund	stratum	voucher	family	species code	common name
Tree (TG)	Mischocarpus pyriformis			0.1	1			Sapindaceae	5926	
Shrub (SG)	Pilidiostigma glabrum			0.1	2			Myrtaceae	4277	
Fern (EG)	Blechnum cartilagineum			4.0	100			Blechnaceae	8052	Gristle Fern
Shrub (SG)	Archirhodomyrtus beckleri			0	5			Myrtaceae	3976	Rose Myrtle
Other (OG)	Archontophoenix cunninghamiana			70	50			Arecaceae	6458	Bangalow Palm
Grass & grasslike (GG)	Ottochloa gracillima			0.1	20			Poaceae	5048	
Other (OG)	Melodinus australis			3	10			Apocynaceae	1172	Southern Melodinus
Shrub (SG)	Synoum glandulosum subsp. glandulosum			2	40			Meliaceae	11178	Scentless Rosewood
Other (OG)	Cyathea australis			1	1			Cyatheaceae	8074	Rough Treefern
Shrub (SG)	Elaeocarpus reticulatus			1	1			Elaeocarpaceae	2574	Blueberry Ash
Forb (FG)	Alpinia caerulea			1	3			Zingiberaceae	6340	Native Ginger
Grass & grasslike (GG)	Gahnia aspera			1.0	5			Cyperaceae	2431	Rough Saw-sedge
Tree (TG)	Euroschinus falcatus var. falcatus			0.5	1			Anacardiaceae	7734	Ribbonwood
Tree (TG)	Cryptocarya microneura			2.0	10			Lauraceae	3483	Murrogun
Other (OG)	Cordyline petiolaris			1.0	5			Asteliaceae	7386	Broad-leaved Palm Lily
Other (OG)	Palmeria scandens			0.1	5			Monimiaceae	3915	Anchor Vine
Other (OG)	Linospadix monostachyos			3	20			Arecaceae	1220	
Fern (EG)	Adiantum hispidulum var. hispidulum			0.2	10			Adiantaceae	11226	Rough Maidenhair
Tree (TG)	Ficus fraseri			0.2	1			Moraceae	3921	Sandpaper Fig
HTE	Lantana camara	Lantana camara	HTE	1.0	10			Verbenaceae	13633	Lantana
Other (OG)	Dioscorea transversa			0.1	5			Dioscoreaceae	6446	Native Yam
Tree (TG)	Litsea reticulata			0.5	10			Lauraceae	3498	Bolly Gum
Shrub (SG)	Hymenosporum flavum			0.1	1			Pittosporaceae	4678	Native Frangipani
Shrub (SG)	Cryptocarya rigida			0.2	5			Lauraceae	3485	Forest Maple
Tree (TG)	Neolitsea australiensis			2.0	20			Lauraceae	8386	Green Bolly Gum
Tree (TG)	Sloanea australis			3.0	5			Elaeocarpaceae	2576	Maiden's Blush
Tree (TG)	Syncarpia glomulifera			10.0	2			Myrtaceae	6688	Turpentine
Tree (TG)	Endiandra muelleri subsp. bracteata			1.0	4			Lauraceae	13696	
Other (OG)	Trophis scandens			0.5	2			Moraceae	10416	Burny Vine
Shrub (SG)	Helicia ferruginea			0.5	2			Proteaceae	5430	
Tree (TG)	Cryptocarya glaucescens			0.2	1			Lauraceae	3479	Jackwood
Shrub (SG)	Psychotria simmondsiana			0.1	1			Rubiaceae	5707	Small Psychotria
Tree (TG)	Diploglottis australis			0.1	1			Sapindaceae	7432	Native Tamarind
Shrub (SG)	Pittosporum multiflorum			0.1	1			Pittosporaceae	11204	Orange Thorn
Tree (TG)	Scolopia braunii			2.0	2			Flacourtiaceae	3110	Flintwood
Shrub (SG)	Wilkiea macrophylla			0.1	3			Monimiaceae	3919	Large-leaved Wilkiea
Tree (TG)	Guioa semiglauca			10.0	8			Sapindaceae	5917	
Tree (TG)	Cinnamomum oliveri			0.1	2			Lauraceae	3472	Oliver's Sassafras
Fern (EG)	Asplenium australasicum			0.2	5			Aspleniaceae	8031	Bird's Nest Fern
Other (OG)	Embelia australiana			0.1	2			Myrsinaceae	3959	
Other (OG)	Smilax glyciphylla			0.1	2			Smilacaceae	6022	Sweet Sarsparilla
Shrub (SG)	Cupaniopsis newmanii			0.1	1			Sapindaceae	7384	
Tree (TG)	Beilschmiedia obtusifolia			0.5	1			Lauraceae	3466	Blush Walnut
Fern (EG)	Pteridium esculentum			0.5	6			Dennstaedtiaceae	6403	Bracken
Grass & grasslike (GG)	Lomandra filiformis			0.1	4			Lomandraceae	6302	Wattle Matt-rush
Shrub (SG)	Rubus moluccanus var. moluccanus			0.1	1			Rosaceae	10811	
Shrub (SG)	Eupomatia laurina			0.5	8			Eupomatiaceae	2768	Bolwarra
Tree (TG)	Endiandra discolor			0.1	1			Lauraceae	3489	Rose Walnut
Tree (TG)	Trochocarpa laurina			0.1	2			Ericaceae	2663	Tree Heath

Other (OG)	Cissus hypoglauca			10	10			Vitaceae	6283	Giant Water Vine
Tree (TG)	Cryptocarya triplinervis			0.2	1			Lauraceae	3486	Three-veined Cryptocarya
Shrub (SG)	Tasmannia insipida			0.1	1			Myrsinaceae	8655	
Grass & grasslike (GG)	Carex appressa			0.1	2			Cyperaceae	2310	Tall Sedge
Shrub (SG)	Acronychia pubescens			0.1	1			Rutaceae	5724	Hairy Acronychia
Tree (TG)	Allocasuarina torulosa			0.5	1			Casuarinaceae	2017	Forest Oak
Tree (TG)	Lophostemon confertus			1	1			Myrtaceae	4242	Brush Box
Forb (FG)	Aneilema acuminatum			0.1	10			Commelinaceae	2206	
Tree (TG)	Polyscias elegans			1	1			Araliaceae	1209	Celery Wood

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E**: exotic, **HTE**: high threat exotic **GF**-circle code if 'top 3'/

Cover: 0.1, 0.2, 0.3……,, 1, 2, 3, …, 10, 15, 20, 25, …100% (foliage cover);

Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across,

0.5% cover represents an area of approximately 1.4 x 1.4 m, 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ……, 10, 20, 30,……100, 200, ……, 1000, …..

BAM SITE FIELD SURVEY FORM				SITE SHEET NUMB	1
		SURVEY/PROJECT NAM	ZONE ID	RECORDERS	
DATE	20/9/18	NIGHTCAP	PCT 1073 Zone 1	TR/GD	
ZONE/DATUM	MGAZ56	PLOT ID	T7	PLOT DIMENTIONS	20MX50M
EASTING	NORTHING	IBRA REGION		MIDLINE BEARING	308
519961	6853018	SEQLD		PHOTOS TAKEN	YES
VEGETATION CLASS		North Coast Wet Sclerophyll Forests		CONFIDENCE:	H
PCT	1073	EEC:	NO	CONFIDENCE:	H

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		SUM VALUES	DBH CM	# TREES COUNT	# STEMS WITH HOLLOWS
Count of **Native Richness**	**Trees**	14	**80+**	1	
	Shrubs	9	**50-79**	YES	
	Grasses etc.	3	**30-49**	YES	1
	Forbs	2	**20-29**	YES	
	Ferns	2	**10-19**	YES	
	Other	7	**5-9**	YES	
Sum of **Cover** of native vascular plants by growth form group	**Trees**	73.7	**<5**	YES	
	Shrubs	3.1	**Length of Logs (m), (=> 10cm dia., >50cm in length)**		143
	Grasses etc.	3.1			
	Forbs	0.2			
	Ferns	0.7			
	Other	1.5			
High Threat Weed **cover**		7			

Counts apply when the number of tree stems within a class size is =<10. Estimates can be used when >10 (eg 10, 20, 30, 100, 200, 300).

For a multi-stemmed tree, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Subplot score (% in each)	Average of the 5 subplots
Litter cover %	95	95
	100	
	95	
	95	
	90	
Bare ground cover %	0	
	0	
	0	
	0	
	0	
Cryptogram cover %	0	
	0	
	0	
	0	
	0	
Rock cover %	0	
	0	
	0	
	0	
	0	

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter).

Assessors **may** also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)					
Morphological Type		Landform Element		Landform Pattern	
Lithology		Soil Surface Texture		Soil Colour	
Slope		Aspect		Site Drainage	
Microrelief		Soil Depth		Distance to nearest water and type	

Plot Disturbance	Severity Code	Age Code	Observational Evidence
Clearing (inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness			
Other			

Severity: 0 = no evidence, 1 = light, 2 = moderate, 3 = severe

Age: R= recent, NR = Not Recent (3-10years), O=Old (>10 years)

400M2 PLOT SHEET 2	Date:	Survey Name	Plot Identifier	Recorders
	20/9/18	NIGHTCAP	T7	TR/GD

GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	SPECIES IF AUTOFILL UNAVAILABLE	Native, Exotic or High Threat Exotic	Cover	Abund	stratum	voucher	family	species code	common name
Tree (TG)	Corymbia intermedia		N	20	10	T		Myrtaceae	9601	Pink Bloodwood
Tree (TG)	Syncarpia glomulifera		N	10	10	T		Myrtaceae	6688	Turpentine
Tree (TG)	Eucalyptus propinqua		N	10.0	3	T		Myrtaceae	4162	Small-fruited Grey Gum
Tree (TG)	Allocasuarina torulosa		N	8	20	M		Casuarinaceae	2017	Forest Oak
Tree (TG)	Eucalyptus crebra		N	4	20	T		Myrtaceae	4074	Narrow-leaved Ironbark
HTE	lantana camara	lantana camara	HTE	7.0	50	G		Verbenaceae	13633	Lantana
Forb (FG)	Alpinia caerulea		N	0.1	1	G		Zingiberaceae	6340	Native Ginger
Tree (TG)	Eucalyptus microcorys		N	5	15	T		Myrtaceae	4128	Tallowwood
Shrub (SG)	Rhodamnia rubescens		N	1	1	M		Myrtaceae	4283	Scrub Turpentine
Grass & grasslike (GG)	Lomandra filiformis subsp. filiformis		N	2	100	G		Lomandraceae	7931	
Shrub (SG)	Leucopogon juniperinus		N	0.1	2	G		Ericaceae	2623	Prickly Beard-heath
Grass & grasslike (GG)	Ottochloa gracillima		N	0.1	400	G		Poaceae	5048	
Tree (TG)	Guioa semiglauca		N	1.0	6	G		Sapindaceae	5917	
Tree (TG)	Euroschinus falcatus var. falcatus		N	1.0	1	M		Anacardiaceae	7734	Ribbonwood
Tree (TG)	Polyscias elegans		N	8.0	40	M		Araliaceae	1209	Celery Wood
Shrub (SG)	Melicope micrococca		N	0.1	1	M		Rutaceae	8625	Hairy-leaved Doughwood
Shrub (SG)	Archirhodomyrtus beckleri		N	0.1	1	G		Myrtaceae	3976	Rose Myrtle
E		Weed 1	E	0.1	8	G				
Shrub (SG)	Cryptocarya rigida		N	0.5	1	G		Lauraceae	3485	Forest Maple
Tree (TG)	Cryptocarya obovata		N	0.5	1	G		Lauraceae	3484	Pepperberry
Other (OG)	Smilax australis		N	0.5	10	M		Smilacaceae	7592	Lawyer Vine, Wait-a-while, Barbwi
Fern (EG)	Platycerium superbum		N	0.5	2	M		Polypodiaceae	8161	Staghorn
Other (OG)	Austrosteenisia glabristyla		N	0.1	1	G		Fabaceae (Faboideae)	6807	Giant Blood Vine
Other (OG)	Celastrus subspicata		N	0.5	10	M		Celastraceae	6794	Large-leaved Staff Vine
Tree (TG)	Flindersia schottiana		N	4.0	8	M		Rutaceae	5796	Cudgerie
Fern (EG)	Davallia solida var. pyxidata		N	0.2	3	G		Davalliaceae	10647	Hare's Foot Fern
Tree (TG)	Diospyros pentamera		N	2.0	5	M		Ebenaceae	2566	Myrtle Ebony
Other (OG)	Embelia australiana		N	0.1	1	G		Myrsinaceae	3959	
Forb (FG)	Pseuderanthemum variabile		N	0.1	50	G		Acanthaceae	1010	Pastel Flower
Shrub (SG)	Zieria smithii		N	1.0	20	G		Rutaceae	5847	Sandfly Zieria
Grass & grasslike (GG)	Gahnia aspera		N	1.0	10	G		Cyperaceae	2431	Rough Saw-sedge
Other (OG)	Parsonsia straminea		N	0.1	1	M		Apocynaceae	1185	Common Silkpod
Shrub (SG)	Synoum glandulosum subsp. glandulosum		N	0.2	1	G		Meliaceae	11178	Scentless Rosewood
Shrub (SG)	Pilidiostigma glabrum		N	0.5	5	G		Myrtaceae	4277	
Tree (TG)	Cryptocarya glaucescens		N	0.1	1	G		Lauraceae	3479	Jackwood
Other (OG)	Marsdenia rostrata		N	0.1	1	G		Apocynaceae	1234	Milk Vine
Other (OG)	Cissus sterculiifolia		N	0.1	1	G		Vitaceae	6286	
Shrub (SG)	Wikstroemia indica		N	0.1	1	M		Thymelaeaceae	6197	
Tree (TG)	Acacia binervata		N	0.1	1	M		Fabaceae (Mimosoideae)	3716	Two-veined Hickory

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E**: exotic, **HTE**: high threat exotic **GF**-circle code if 'top 3'/

Cover: 0.1, 0.2, 0.3……., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover);

Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across,

0.5% cover represents an area of approximately 1.4 x 1.4 m, 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ……, 10, 20, 30,……..100, 200, ……, 1000, ...

BAM SITE FIELD SURVEY FORM				SITE SHEET NUMB	1
		SURVEY/PROJECT NAM	ZONE ID	RECORDERS	
DATE	27-9-18	NIGHTCAP	Plantation	TR/BS	
ZONE/DATUM	MGAZ56	PLOT ID	T8	PLOT DIMENTIONS	20MX50M
EASTING	NORTHING	IBRA REGION		MIDLINE BEARING	173
521432	6852094	SEQLD		PHOTOS TAKEN	YES
VEGETATION CLASS		N/A		CONFIDENCE:	M
PCT	N/A	EEC:	NO	CONFIDENCE:	M

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		SUM VALUES	DBH CM	# TREES COUNT	# STEMS WITH HOLLOWS
Count of **Native Richness**	**Trees**	2	**80+**	0	
	Shrubs	0	**50-79**	NO	
	Grasses etc.	0	**30-49**	NO	0
	Forbs	3	**20-29**	YES	
	Ferns	1	**10-19**	YES	
	Other	1	**5-9**	YES	
Sum of **Cover** of native vascular plants by growth form group	**Trees**	31	**<5**	YES	
	Shrubs	0	**Length of Logs (m), (=> 10cm dia., >50cm in length)**		0
	Grasses etc.	0			
	Forbs	0.4			
	Ferns	10			
	Other	0.1			
High Threat Weed **cover**		0.6			

Counts apply when the number of tree stems within a class size is =<10. Estimates can be used when >10 (eg 10, 20, 30, 100, 200, 300).

For a multi-stemmed tree, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Subplot score (% in each)	Average of the 5 subplots
Litter cover %	20	55
	50	
	25	
	85	
	95	
Bare ground cover %	0	
	0	
	0	
	0	
	0	
Cryptogram cover %	0	
	0	
	0	
	0	
	0	
Rock cover %	0	
	0	
	0	
	0	
	0	

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter).

Assessors **may** also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)					
Morphological Type		Landform Element		Landform Pattern	
Lithology		Soil Surface Texture		Soil Colour	
Slope		Aspect		Site Drainage	
Microrelief		Soil Depth		Distance to nearest water and type	

Plot Disturbance	Severity Code	Age Code	Observational Evidence
Clearing (inc. logging)			
Cultivation (inc. pasture)	3	R	plantation
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness			
Other			

Severity: 0 = no evidence, 1 = light, 2 = moderate, 3 = severe
Age: R= recent, NR = Not Recent (3-10years), O=Old (>10 years)

400M2 PLOT SHEET 2	Date:	Survey Name	Plot Identifier	Recorders
	27-9-18	NIGHTCAP	T8	TR/BS

GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	SPECIES IF AUTOFILL UNAVAILABLE	Native, Exotic or High Threat Exotic	Cover	Abund	stratum	voucher	family	species code	common name
Tree (TG)	Eucalyptus saligna		N	30.00				Myrtaceae	4177	Sydney Blue Gum
Tree (TG)	Acacia melanoxylon		N	1.00	2			Fabaceae (Mimosoideae)	3824	Blackwood
Fern (EG)	Pteridium esculentum		N	10.00				Dennstaedtiaceae	6403	Bracken
E	Setaria sphacelata		E	90.00				Poaceae	5167	South African Pigeon Grass
E	Gomphocarpus physocarpus		E	5.00				Apocynaceae	1228	Balloon Cotton Bush
Other (OG)	Glycine clandestina		N	0.10	2			Fabaceae (Faboideae)	2860	Twining glycine
E	Solanum mauritianum		E	0.10	1			Solonaceae	6090	Wild Tobacco Bush
HTE	Ageratina adenophora		HTE	0.20	4			Asteraceae	1255	Crofton Weed
Forb (FG)	Verbena spp.	Verbena littoralis	E	0.10	1			Verbenaceae	6258	
Forb (FG)	Centella asiatica		N	0.20	20			Apiaceae	1106	Indian Pennywort
HTE	Senecio madagascariensis		HTE	0.10	2			Asteraceae	6465	Fireweed
HTE	Cinnamomum camphora		HTE	0.10	1			Lauraceae	3471	Camphor Laurel
Forb (FG)	Desmodium rhytidophyllum		N	0.10	2			Fabaceae (Faboideae)	2839	
HTE	Lantana camara		HTE	0.20	3			Verbenaceae	6248	Lantana
E	Macroptilium atropurpureum		E	0.10	5			Fabaceae (Faboideae)	6550	Siratro

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E**: exotic, **HTE**: high threat exotic **GF**-circle code if 'top 3'/

Cover: 0.1, 0.2, 0.3……,, 1, 2, 3, …, 10, 15, 20, 25, …100% (foliage cover);

Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across,

0.5% cover represents an area of approximately 1.4 x 1.4 m, 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ……, 10, 20, 30,…….100, 200, ……, 1000, …..

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	27/09/2018	Nightcap	Plantation	TR & GD			
Zone 56	Datum MGAZ	**Plot ID**	T9	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 521543	Northing 6851887	**IBRA region**	SEQLD	**Midline bearing from 0 m**	173º		

Vegetation Class	N/A		Confidence: (H) M L
Plant Community Type	N/A	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	3
	Shrubs	2
	Grasses etc.	0
	Forbs	2
	Ferns	0
	Other	0
Sum of **Cover** of native vascular plants by growth form group	**Trees**	37.1
	Shrubs	1.1
	Grasses etc.	0
	Forbs	0.2
	Ferns	0
	Other	0
High Threat Weed cover		2

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	No	-
50 – 79 cm	No	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	12m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	50	40	40	50	60	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	48																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)	3	NR	Plantation.
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	3	NR	Exotic grasses dominate the ground layer.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	27/09/2018	Nightcap	T9	TR & BS

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	2	1		
-	*Ageratina adenophora*	HTE	2	50		
Forb (F)	*Desmodium rhytidophyllum*	N	0.1	20		
Tree (TG)	*Eucalyptus grandis*	N	35			
Forb (F)	*Geranium homeanum*	N	0.1	50		
Tree (TG)	*Glochidion ferdinandi*	N	0.1	1		
-	*Gomphocarpus physocarpus*	E	0.2	25		
Shrub (SG)	*Hovea acutifolia*	N	1	12		
Fern (EG)	*Pteridium esculentum*	N	25			
Shrub (SG)	*Rubus moluccanus var. moluccanus*	N	0.1	4		
-	*Setaria sphacelata*	E	85			

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	27/09/2018	Nightcap	Plantation	TR & GD			
Zone 56	Datum MGAZ	**Plot ID**	T10	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 521533	Northing 6851433	**IBRA region**	SEQLD	**Midline bearing from 0 m**	62º		

Vegetation Class	N/A		Confidence: (H) M L
Plant Community Type	N/A	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	3
	Shrubs	6
	Grasses etc.	1
	Forbs	0
	Ferns	1
	Other	2
Sum of **Cover** of native vascular plants by growth form group	**Trees**	32.5
	Shrubs	4.7
	Grasses etc.	75
	Forbs	0
	Ferns	20
	Other	3.5
High Threat Weed cover		5.1

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	No	0
50 – 79 cm	No	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	14m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	60	80	75	80	75	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	75																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)	3	NR	Plantation.
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	3	NR	Exotic grasses dominate the ground layer.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	27/09/2018	Nightcap	T10	TR & BS

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	2	3		
-	*Ageratina adenophora*	HTE	3	40		
Shrub (SG)	*Archirhodomyrtus beckleri*	N	0.2	5		
Shrub (SG)	*Callistemon salignus*	N	2	4		
-	*Cinnamomum camphora*	HTE	0.1	1		
Other (OG)	*Cissus hypoglauca*	N	0.5	1		
Tree (TG)	*Eucalyptus grandis*	N	30			
Tree (TG)	*Glochidion ferdinandi*	N	0.5	1		
-	*Gomphocarpus physocarpus*	E	0.2	10		
Shrub (SG)	*Hovea acutifolia*	N	1	10		
Grass& Grass-like (GG)	*Imperata cylindrica*	N	75			
-	*Lantana camara*	HTE	2	1		
Shrub (SG)	*Leucopogon juniperinus*	N	0.5	1		
Other (OG)	*Persoonia adenantha*	N	3	3		
Fern (EG)	*Pteridium esculentum*	N	20			
Shrub (SG)	*Rubus parvifolius*	N	0.5	50		
-	*Senna septemtrionalis*	E	1	3		
Shrub (SG)	*Zieria smithii*	N	0.5	15		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	04/10/2018	Nightcap	Plantation	TR & JB			
Zone 56	Datum MGAZ	**Plot ID**	T11	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 519555	Northing 6850719	**IBRA region**	SEQLD	**Midline bearing from 0 m**	63º		

Vegetation Class	N/A		Confidence: (H) M L
Plant Community Type	N/A	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	9
	Shrubs	3
	Grasses etc.	2
	Forbs	1
	Ferns	2
	Other	3
Sum of **Cover** of native vascular plants by growth form group	**Trees**	86.6
	Shrubs	5.6
	Grasses etc.	3.1
	Forbs	0.1
	Ferns	1.1
	Other	2.2
High Threat Weed cover		17.1

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	No	0
50 – 79 cm	No	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	54m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	98	100	95	98	96	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	97.4																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)	3	NR	Plantation.
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	2	NR	Exotic grasses and lantana common.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	04/10/2018	Nightcap	T11	TR & JB

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	1	1		
-	*Ageratina adenophora*	HTE	0.1	5		
Tree (TG)	*Allocasuarina torulosa*	N	0.1	1		
Shrub (SG)	*Breynia oblongifolia*	N	0.5	15		
Tree (TG)	*Clerodendrum tomentosum*	N	0.1	1		
Forb (F)	*Desmodium rhytidophyllum*	N	0.1	5		
Tree (TG)	*Eucalyptus grandis*	N	25			
Tree (TG)	*Eucalyptus pilularis*	N	20			
Shrub (SG)	*Eupomatia laurina*	N	5			
Tree (TG)	*Glochidion ferdinandi*	N	0.2	1		
Tree (TG)	*Ficus watkinsiana*	N	0.1	1		
Other (OG)	*Hibbertia scandens*	N	0.2	3		
-	*Lantana camara*	HTE	10			
Grass& Grass-like (GG)	*Lomandra longifolia*	N	3	20		
Tree (TG)	*Lophostemon confertus*	N	40			
Other (OG)	*Maclura cochinchinensis*	N	1	20		
Other (OG)	*Marsdenia rostrata*	N	1	1		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	50		
-	*Paspalum dilatatum*	HTE	7			
Fern (EG)	*Platycerium superbum*	N	0.1	2		
Tree (TG)	*Polyscias elegans*	N	0.1	1		
Fern (EG)	*Pteridium esculentum*	N	1	10		
Shrub (SG)	*Zieria smithii*	N	0.1	1		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	24/10/2018	Nightcap	Plantation	TR & JB			
Zone 56	Datum MGAZ	**Plot ID**	T12	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 522162	Northing 6852226	**IBRA region**	SEQLD	**Midline bearing from 0 m**	126º		
Vegetation Class		N/A				Confidence: H M L	
Plant Community Type		N/A		**EEC:** NO		Confidence: H M L	

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	3
	Shrubs	5
	Grasses etc.	4
	Forbs	1
	Ferns	1
	Other	1
Sum of **Cover** of native vascular plants by growth form group	**Trees**	55
	Shrubs	3.3
	Grasses etc.	35.3
	Forbs	0.1
	Ferns	1
	Other	0.1
High Threat Weed cover		41.5

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	No	0
50 – 79 cm	No	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	No	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	4m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	50	35	50	40	60	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	47																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)	3	NR	Plantation.
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	3	NR	Exotic grasses dominant with herbaceous weeds common.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	24/10/2018	Nightcap	T12	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	2	5		
-	*Ageratina adenophora*	HTE	0.5	20		
-	*Baccharis halimifolia*	HTE	0.5	2		
Shrub (SG)	*Breynia oblongifolia*	N	0.1	1		
Shrub (SG)	*Callistemon salignus*	N	1	2		
Forb (F)	*Commelina cyanea*	N	0.1	10		
Grass& Grass-like (GG)	*Cyperus sp.*	N	0.1	5		
Tree (TG)	*Eucalyptus pilularis*	N	50			
Tree (TG)	*Eucalyptus saligna*	N	3	5		
-	*Gomphocarpus physocarpus*	N	0.1	2		
Grass& Grass-like (GG)	*Imperata cylindrica*	N	35			
-	*Lantana camara*	HTE	0.5	1		
Grass& Grass-like (GG)	*Lomandra longifolia*	N	0.1	1		
Grass& Grass-like (GG)	*Oplismenus aemulus*	N	0.1	50		
-	*Paspalum dilatatum*	HTE	40			
-	*Pennisetum clandestinum*	E	0.1	1		
Shrub (SG)	*Persoonia adenantha*	N	2	5		
Fern (EG)	*Pteridium esculentum*	N	1	10		
Shrub (SG)	*Rubus moluccanus var. moluccanus*	N	0.1	1		
Shrub (SG)	*Rubus parvifolius*	N	0.1	2		
Other (OG)	*Smilax australis*	N	0.1	1		
-	*Solanum mauritianum*	E	0.2	1		
-	*Verbena bonariensis*	E	0.1	1		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.
Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*
Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	01/11/2018	Nightcap	Plantation	TR & JB			
Zone 56	Datum MGAZ	**Plot ID**	T13	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 521533	Northing 6852858	**IBRA region**	SEQLD	**Midline bearing from 0 m**	157º		
Vegetation Class		N/A				Confidence: H M L	
Plant Community Type		N/A		**EEC:** NO		Confidence: H M L	

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	1
	Shrubs	1
	Grasses etc.	0
	Forbs	0
	Ferns	1
	Other	0
Sum of **Cover** of native vascular plants by growth form group	**Trees**	40
	Shrubs	3
	Grasses etc.	0
	Forbs	0
	Ferns	20
	Other	0
High Threat Weed cover		21.1

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	No	0
50 – 79 cm	No	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	11m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	80	75	75	85	60	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	75																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)	3	NR	Plantation.
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	3	NR	Exotic grasses and Lantana dominates the understorey.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	01/11/2018	Nightcap	T13	TR & JB

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
-	*Ageratina adenophora*	HTE	6			
-	*Cinnamomum camphora*	HTE	0.1	10		
Tree (TG)	*Eucalyptus grandis*	N	40			
-	*Lantana camara*	HTE	15			
-	*Paspalum spp.*	E	90			
Shrub (SG)	*Persoonia adenantha*	N	3	3		
Fern (EG)	*Pteridium esculentum*	N	20			

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	01/11/2018	Nightcap	Plantation	TR & JB			
Zone 56	Datum MGAZ	**Plot ID**	T14	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 520770	Northing 6851273	**IBRA region**	SEQLD	**Midline bearing from 0 m**	176º		

Vegetation Class	N/A		Confidence: (H) M L
Plant Community Type	N/A	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	5
	Shrubs	7
	Grasses etc.	2
	Forbs	3
	Ferns	1
	Other	3
Sum of **Cover** of native vascular plants by growth form group	**Trees**	26.5
	Shrubs	4.7
	Grasses etc.	75.1
	Forbs	0.3
	Ferns	10
	Other	0.4
High Threat Weed cover		6.1

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	No	0
50 – 79 cm	No	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	8m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	80	90	75	80	80	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	81																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)	3	NR	Plantation.
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	3	NR	Exotic grasses and Lantana common within the understorey.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	01/11/2018	Nightcap	T14	TR & JB

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	0.5	1		
-	*Ageratina adenophora*	HTE	1	50		
Shrub (SG)	*Archirhodomyrtus beckleri*	N	0.5	3		
-	*Cinnamomum camphora*	HTE	0.1	3		
Forb (F)	*Desmodium rhytidophyllum*	N	0.1	1		
Tree (TG)	*Eucalyptus grandis*	N	15			
Tree (TG)	*Eucalyptus saligna*	N	10			
Tree (TG)	*Glochidion ferdinandi*	N	0.5	2		
Grass & Grass-like (GG)	*Imperata cylindrica*	N	75			
-	*Lantana camara*	HTE	5			
Shrub (SG)	*Leucopogon juniperinus*	N	0.5	10		
Tree (TG)	*Macaranga tanarius*	N	0.5	1		
Other (OG)	*Marsdenia rostrata*	N	0.1	2		
Grass & Grass-like (GG)	*Ottochloa gracillima*	N	0.1	20		
Forb (F)	*Oxalis chnoodes*	N	0.1	50		
-	*Paspalum spp.*	E	10			
Shrub (SG)	*Persoonia adenantha*	N	2	4		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	50		
Fern (EG)	*Pteridium esculentum*	N	10			
Shrub (SG)	*Rubus parvifolius*	N	1	50		
Other (OG)	*Smilax australis*	N	0.2	2		
Shrub (SG)	*Solanum hapalum*	N	0.5	2		
-	*Solanum mauritianum*	E	0.2	5		
Other (OG)	*Stephania japonica*	N	0.1	1		
Shrub (SG)	*Trema tomentosa var. aspera*	N	0.1	1		
Shrub (SG)	*Zieria smithii*	N	0.1	1		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.
Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*
Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	01/11/2018	Nightcap	Plantation	TR & JB			
Zone 56	Datum MGAZ	**Plot ID**	T15	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 520420	Northing 6851914	**IBRA region**	SEQLD	**Midline bearing from 0 m**	11°		

Vegetation Class	N/A		Confidence: (H) M L
Plant Community Type	N/A	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	8
	Shrubs	9
	Grasses etc.	4
	Forbs	1
	Ferns	2
	Other	1
Sum of **Cover** of native vascular plants by growth form group	**Trees**	40.4
	Shrubs	10.3
	Grasses etc.	13.2
	Forbs	0.1
	Ferns	1.1
	Other	0.2
High Threat Weed cover		5.5

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	No	0
50 – 79 cm	No	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	8m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	95	99	95	95	98	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	96.4																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)	3	NR	Plantation.
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	2	NR	Lantana common within the area.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	01/11/2018	Nightcap	T15	TR & JB

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	7			
Tree (TG)	*Alphitonia excelsa*	N	1	4		
Shrub (SG)	*Archirhodomyrtus beckleri*	N	0.5	2		
-	*Cinnamomum camphora*	HTE	0.5	3		
Tree (TG)	*Commersonia bartramia*	N	2	4		
Tree (TG)	*Cryptocarya microneura*	N	0.1	1		
Fern (EG)	*Doodia aspera*	N	0.1	1		
Grass& Grass-like (GG)	*Entolasia stricta*	N	0.1	50		
Tree (TG)	*Eucalyptus grandis*	N	30			
Tree (TG)	*Euroschinus falcatus var. falcatus*	N	0.2	1		
Grass& Grass-like (GG)	*Gahnia aspera*	N	3	30		
Shrub (SG)	*Hibiscus heterophyllus*	N	0.5	1		
Shrub (SG)	*Hovea acutifolia*	N	2	5		
Tree (TG)	*Jagera pseudorhus var. pseudorhus*	N	0.1	2		
-	*Lantana camara*	HTE	5			
Grass& Grass-like (GG)	*Lomandra longifolia*	N	10			
Tree (TG)	*Lophostemon confertus*	N	1	3		
Shrub (SG)	*Myrsine variabilis*	N	0.1	1		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	400		
Shrub (SG)	*Persoonia adenantha*	N	5			
Shrub (SG)	*Pimelea latifolia*	N	0.1	6		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	200		
Fern (EG)	*Pteridium esculentum*	N	1	20		
Shrub (SG)	*Rhodamnia rubescens*	N	1	1		
Other (OG)	*Smilax australis*	N	0.2	2		
Shrub (SG)	*Synoum glandulosum subsp. glandulosum*	N	0.1	2		
Shrub (SG)	*Syzygium oleosum*	N	1	4		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	08/11/2018	Nightcap	PCT 1073 Zone 1	TR & JB			
Zone 56	Datum MGAZ	**Plot ID**	T16	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 521968	Northing 6851103	**IBRA region**	SEQLD	**Midline bearing from 0 m**	257º		

Vegetation Class	North Coast Wet Sclerophyll Forests		Confidence: (H) M L
Plant Community Type	1073	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	7
	Shrubs	9
	Grasses etc.	4
	Forbs	4
	Ferns	1
	Other	4
Sum of **Cover** of native vascular plants by growth form group	**Trees**	58
	Shrubs	6.8
	Grasses etc.	65.2
	Forbs	0.4
	Ferns	3
	Other	0.4
High Threat Weed cover		2

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	3	3
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	14m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	95	95	98	80	95	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	92.6																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	1	O	Previous felling/logging
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	1	NR	Low.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	08/11/2018	Nightcap	T16	TR & JB

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	2	8		
Shrub (SG)	*Archirhodomyrtus beckleri*	N	1	4		
Shrub (SG)	*Astrotricha latifolia*	N	0.5	10		
Shrub (SG)	*Breynia oblongifolia*	N	2	20		
Other (OG)	*Cissus antarctica*	N	0.1	1		
Tree (TG)	*Corymbia intermedia*	N	6	1		
Forb (F)	*Desmodium rhytidophyllum*	N	0.1	100		
Grass & Grass-like (GG)	*Entolasia stricta*	N	0.1	10		
Tree (TG)	*Eucalyptus acmenoides*	N	45			
Tree (TG)	*Eucalyptus microcorys*	N	1	2		
Other (OG)	*Glycine clandestina*	N	0.1	50		
Tree (TG)	*Guioa semiglauca*	N	3	3		
Other (OG)	*Hibbertia scandens*	N	0.1	1		
Shrub (SG)	*Hovea acutifolia*	N	2	15		
Grass & Grass-like (GG)	*Imperata cylindrica*	N	60			
-	*Lantana camara*	HTE	2	10		
Shrub (SG)	*Leucopogon juniperinus*	N	0.5	50		
Grass& Grass-like (GG)	*Lomandra longifolia*	N	5			
Tree (TG)	*Mallotus philippensis*	N	0.5	3		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	200		
Forb (F)	*Oxalis chnoodes*	N	0.1	50		
Shrub (SG)	*Persoonia adenantha*	N	0.5	3		
Forb (F)	*Pratia purpurascens*	N	0.1	100		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	200		
Fern (EG)	*Pteridium esculentum*	N	3	50		
Shrub (SG)	*Rubus moluccanus var. moluccanus*	N	0.1	2		
-	*Senna septemtrionalis*	E	1	20		
Other (OG)	*Smilax australis*	N	0.1	4		
Tree (TG)	*Trochocarpa laurina*	N	0.5	3		
Shrub (SG)	*Wilkiea huegeliana*	N	0.1	1		
Shrub (SG)	*Zieria smithii*	N	0.1	5		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	08/11/2018	Nightcap	PCT 1073 Zone 1	TR & JB			
Zone 56	Datum MGAZ	**Plot ID**	T17	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 521504	Northing 6850769	**IBRA region**	SEQLD	**Midline bearing from 0 m**	267º		

Vegetation Class	North Coast Wet Sclerophyll Forests		Confidence: (H) M L
Plant Community Type	1073	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	9
	Shrubs	7
	Grasses etc.	6
	Forbs	4
	Ferns	1
	Other	4
Sum of **Cover** of native vascular plants by growth form group	**Trees**	65.6
	Shrubs	4.8
	Grasses etc.	66.2
	Forbs	0.4
	Ferns	7
	Other	0.4
High Threat Weed cover		2.2

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	2	3
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	26m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	95	95	98	80	95	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	92.6																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	1	O	Previous felling/logging
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	1	NR	Low.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	08/11/2018	Nightcap	T17	TR & JB

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	0.5	2		
-	*Ageratina riparia*	HTE	0.2	1		
Tree (TG)	*Allocasuarina torulosa*	N	2	6		
Tree (TG)	*Alphitonia excelsa*	N	0.5	1		
Shrub (SG)	*Archirhodomyrtus beckleri*	N	2	20		
Shrub (SG)	*Breynia oblongifolia*	N	1	20		
Tree (TG)	*Corymbia intermedia*	N	1	1		
Forb (F)	*Desmodium rhytidophyllum*	N	0.1	50		
Tree (TG)	*Eucalyptus acmenoides*	N	50			
Tree (TG)	*Eucalyptus microcorys*	N	1	1		
Grass& Grass-like (GG)	*Gahnia aspera*	N	2	6		
Other (OG)	*Glycine clandestina*	N	0.1	50		
Tree (TG)	*Guioa semiglauca*	N	0.5	1		
Other (OG)	*Hardenbergia violacea*	N	0.1	2		
Other (OG)	*Hibbertia scandens*	N	0.1	1		
Grass& Grass-like (GG)	*Imperata cylindrica*	N	60			
-	*Lantana camara*	HTE	2	10		
Grass& Grass-like (GG)	*Lepidosperma laterale*	N	0.1	1		
Shrub (SG)	*Leucopogon juniperinus*	N	0.5	20		
Grass& Grass-like (GG)	*Lomandra confertifolia*	N	2	25		
Grass& Grass-like (GG)	*Lomandra filiformis*	N	2	25		
Tree (TG)	*Mallotus philippensis*	N	0.1	1		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	200		
Forb (F)	*Oxalis chnoodes*	N	0.1	50		
Shrub (SG)	*Persoonia adenantha*	N	0.5	2		
Forb (F)	*Pratia purpurascens*	N	0.1	100		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	500		
Fern (EG)	*Pteridium esculentum*	N	7			
Shrub (SG)	*Rubus moluccanus var. moluccanus*	N	0.1	1		
-	*Senna septemtrionalis*	E	0.2	3		
Other (OG)	*Smilax australis*	N	0.1	2		
Tree (TG)	*Syncarpia glomulifera*	N	10			
Shrub (SG)	*Synoum glandulosum subsp. glandulosum*	N	0.2	3		
Shrub (SG)	*Zieria smithii*	N	0.5	15		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	14/11/2018	Nightcap	Plantation	TR & JB			
Zone 56	Datum MGAZ	**Plot ID**	T18	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 518856	Northing 6849940	**IBRA region**	SEQLD	**Midline bearing from 0 m**	33º		

Vegetation Class	N/A		Confidence: (H) M L
Plant Community Type	N/A	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	8
	Shrubs	6
	Grasses etc.	3
	Forbs	4
	Ferns	1
	Other	4
Sum of **Cover** of native vascular plants by growth form group	**Trees**	44.8
	Shrubs	1.4
	Grasses etc.	22.1
	Forbs	0.8
	Ferns	3
	Other	3.1
High Threat Weed cover		6.1

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	No	0
50 – 79 cm	No	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	6m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	**Litter cover (%)**					**Bare ground cover (%)**					**Cryptogam cover (%)**					**Rock cover (%)**				
Subplot score (% in each)	95	95	80	85	95	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	90																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	**Severity code**	**Age code**	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)	3	NR	Plantation
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	3	NR	Ground layer dominated by exotic grasses and lantana.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	14/11/2018	Nightcap	T18	TR & JB

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	2	6		
-	*Ageratina adenophora*	HTE	0.1	5		
Tree (TG)	*Araucaria cunninghamii*	N	0.1	1		
Shrub (SG)	*Breynia oblongifolia*	N	0.5	7		
Tree (TG)	*Corymbia citriodora*	N	40			
Tree (TG)	*Corymbia intermedia*	N	0.2	1		
Shrub (SG)	*Denhamia silvestris*	N	0.1	2		
Forb (F)	*Desmodium rhytidophyllum*	N	0.1	100		
Forb (F)	*Desmodium gunnii*	N	0.1	50		
Forb (F)	*Dianella revoluta*	N	0.5	10		
Tree (TG)	*Eucalyptus acmenoides*	N	0.5	1		
Tree (TG)	*Eucalyptus microcorys*	N	0.5	1		
Tree (TG)	*Eucalyptus siderophloia*	N	0.5	3		
Other (OG)	*Glycine clandestina*	N	0.1	100		
Other (OG)	*Hibbertia scandens*	N	0.5	5		
Shrub (SG)	*Hovea acutifolia*	N	0.5	1		
Grass& Grass-like (GG)	*Imperata cylindrica*	N	20			
-	*Lantana camara*	HTE	6			
Grass& Grass-like (GG)	*Lomandra longifolia*	N	2	20		
Tree (TG)	*Lophostemon confertus*	N	1	6		
Other (OG)	*Maclura cochinchinensis*	N	0.5	2		
Shrub (SG)	*Myrsine variabilis*	N	0.1	1		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	200		
Other (OG)	*Smilax australis*	N	2	50		
-	*Paspalum spp.*	E	5			
Shrub (SG)	*Pimelea latifolia*	N	0.1	1		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	200		
Fern (EG)	*Pteridium esculentum*	N	3			
Shrub (SG)	*Synoum glandulosum subsp. glandulosum*	N	0.1	3		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	14/11/2018	Nightcap	Plantation	TR & JB			
Zone 56	Datum MGAZ	**Plot ID**	T19	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 519156	Northing 6850674	**IBRA region**	SEQLD	**Midline bearing from 0 m**	111º		

Vegetation Class	N/A		Confidence: (H) M L
Plant Community Type	N/A	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	4
	Shrubs	4
	Grasses etc.	2
	Forbs	1
	Ferns	1
	Other	3
Sum of **Cover** of native vascular plants by growth form group	**Trees**	52.2
	Shrubs	6.2
	Grasses etc.	30.2
	Forbs	0.1
	Ferns	3
	Other	0.3
High Threat Weed cover		40.5

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	No	0
50 – 79 cm	No	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	8m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	95	40	95	95	95	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	84																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)	3	NR	Plantation.
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	2	NR	Lantana dominant within the understorey.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	14/11/2018	Nightcap	T19	TR & JB

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	1	5		
-	*Ageratina adenophora*	HTE	0.5	10		
Tree (TG)	*Alphitonia petriei*	N	0.2	2		
Shrub (SG)	*Breynia oblongifolia*	N	0.2	2		
Shrub (SG)	*Callistemon salignus*	N	1	1		
Other (OG)	*Cissus antarctica*	N	0.1	1		
Tree (TG)	*Eucalyptus grandis*	N	50			
Tree (TG)	*Eucalyptus microcorys*	N	1	4		
Other (OG)	*Glycine clandestina*	N	0.1	50		
Grass& Grass-like (GG)	*Imperata cylindrica*	N	30			
-	*Lantana camara*	HTE	40			
Shrub (SG)	*Leucopogon juniperinus*	N	4	20		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.2	100		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	50		
Fern (EG)	*Pteridium esculentum*	N	3	30		
Other (OG)	*Smilax australis*	N	0.1	10		
Shrub (SG)	*Synoum glandulosum subsp. glandulosum*	N	1	2		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	04/12/2018	Nightcap	PCT 812 Zone 1	TR & GD			
Zone 56	Datum MGAZ	**Plot ID**	T20	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 522736	Northing 6851378	**IBRA region**	SEQLD	**Midline bearing from 0 m**	34º		

Vegetation Class	North Coast Wet Sclerophyll Forests		Confidence: (H) M L
Plant Community Type	PCT 812	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	10
	Shrubs	9
	Grasses etc.	5
	Forbs	1
	Ferns	3
	Other	8
Sum of **Cover** of native vascular plants by growth form group	**Trees**	88
	Shrubs	16.8
	Grasses etc.	7.2
	Forbs	0.1
	Ferns	3.2
	Other	3.7
High Threat Weed cover		6

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	No	0
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	39.1m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	98	95	99	98	95	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	97																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	1	NR	Low. Patches of Lantana present
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	04/12/2018	Nightcap	T20	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia maidenii*	N	1	4		
Shrub (SG)	*Alchornea ilicifolia*	N	5			
Tree (TG)	*Alphitonia excelsa*	N	0.1	1		
Tree (TG)	*Araucaria cunninghamii*	N	15			
Fern (EG)	*Arthropteris tenella*	N	0.1	1		
Shrub (SG)	*Astrotricha latifolia*	N	0.1	1		
Shrub (SG)	*Breynia oblongifolia*	N	3	15		
Shrub (SG)	*Callistemon salignus*	N	6			
Tree (TG)	*Cupaniopsis parvifolia*	N	0.1	1		
Forb (F)	*Dianella caerulea*	N	0.1	1		
Other (OG)	*Dioscorea transversa*	N	0.1	8		
Fern (EG)	*Doodia aspera*	N	3	150		
Other (OG)	*Echinostephia aculeata*	N	0.1	1		
Grass& Grass-like (GG)	*Entolasia stricta*	N	1	40		
Grass& Grass-like (GG)	*Gahnia aspera*	N	4	30		
Other (OG)	*Geitonoplesium cymosum*	N	0.1	1		
Tree (TG)	*Glochidion ferdinandi*	N	0.1	2		
Tree (TG)	*Guioa semiglauca*	N	1	5		
Tree (TG)	*Flindersia spp.*	N	0.1	1		
Shrub (SG)	*Hibiscus heterophyllus*	N	0.5	12		
Shrub (SG)	*Hovea acutifolia*	N	1	15		
Tree (TG)	*Jagera pseudorhus var. pseudorhus*	N	0.5	8		
-	*Lantana camara*	HTE	6			
Grass& Grass-like (GG)	*Lomandra longifolia*	N	2	20		
Tree (TG)	*Lophostemon confertus*	N	70			
Other (OG)	*Maclura cochinchinensis*	N	0.1	1		
Other (OG)	*Marsdenia rostrata*	N	0.1	1		
Shrub (SG)	*Myrsine variabilis*	N	0.1	2		
Grass& Grass-like (GG)	*Oplismenus hirtellus*	N	0.1	10		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	200		
Shrub (SG)	*Pittosporum undulatum*	N	0.1	1		
Fern (EG)	*Platycerium superbum*	N	0.1	1		
Other (OG)	*Smilax australis*	N	0.1	2		
Tree (TG)	*Tripladenia cunninghamii*	N	0.1	3		
Other (OG)	*Trochocarpa laurina*	N	3	10		
Other (OG)	*Trophis scandens*	N	0.1	1		
Shrub (SG)	*Zieria smithii*	N	1	20		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	04/12/2018	Nightcap	PCT 1073 Zone 1	TR & GD			
Zone 56	Datum MGAZ	**Plot ID**	T21	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 523139	Northing 6852028	**IBRA region**	SEQLD	**Midline bearing from 0 m**	55º		

Vegetation Class	North Coast Wet Sclerophyll Forests		Confidence: (H) M L
Plant Community Type	1073	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	6
	Shrubs	4
	Grasses etc.	4
	Forbs	6
	Ferns	1
	Other	3
Sum of **Cover** of native vascular plants by growth form group	**Trees**	53.2
	Shrubs	8.5
	Grasses etc.	70.8
	Forbs	0.6
	Ferns	0.1
	Other	2.2
High Threat Weed cover		4.8

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	1	0
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	14m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	95	80	90	95	95	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	91																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage	2	R	Evidence of a recent bushfire (~4-6 months ago)
Storm damage			
Weediness	2	R	A variety of weeds regenerating.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	04/12/2018	Nightcap	T21	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Shrub (SG)	*Acronychia pubescens*	N	1	6		
-	*Ageratina riparia*	HTE	0.5	50		
-	*Baccharis halimifolia*	HTE	0.1	1		
Shrub (SG)	*Breynia oblongifolia*	N	5			
Shrub (SG)	*Callistemon salignus*	N	2	10		
Forb (F)	*Centella asiatica*	N	0.1	20		
-	*Chloris gayana*	HTE	2	40		
Tree (TG)	*Corymbia intermedia*	N	10			
-	*Crotalaria spp.*	E	0.1	3		
-	*Daucus carota*	E	0.1	2		
Forb (F)	*Desmodium rhytidophyllum*	N	0.1	200		
Forb (F)	*Dianella caerulea*	N	0.1	2		
-	*Emilia sonchifolia*	E	0.5	20		
-	*Eragrostis curvula*	HTE	0.1	1		
Tree (TG)	*Eucalyptus propinqua*	N	40			
Tree (TG)	*Eucalyptus siderophloia*	N	1	1		
Grass & Grass-like (GG)	*Gahnia aspera*	N	0.1	1		
Forb (F)	*Geranium homeanum*	N	0.1	50		
Tree (TG)	*Glochidion ferdinandi*	N	0.1	2		
Other (OG)	*Glycine clandestina*	N	0.1	1		
-	*Gomphocarpus physocarpus*	E	0.1	50		
Grass & Grass-like (GG)	*Imperata cylindrica*	N	70			
-	*Lantana camara*	HTE	2	30		
Shrub (SG)	*Leucopogon juniperinus*	N	0.5	10		
-	*Ligustrum lucidum*	HTE	0.1	2		
Grass& Grass-like (GG)	*Lomandra longifolia*	N	0.5	4		
Tree (TG)	*Lophostemon confertus*	N	2	1		
Tree (TG)	*Mallotus philippensis*	N	0.1	1		
-	*Onopordum acanthium*	E	0.1	2		
Grass& Grass-like (GG)	*Oplismenus aemulus*	N	0.2	400		
Forb (F)	*Oxalis chnoodes*	N	0.1	50		
Other (OG)	*Parsonsia straminea*	N	2	10		
Forb (F)	*Pratia purpurascens*	N	0.1	25		
Fern (EG)	*Pteridium esculentum*	N	0.1	10		
Other (OG)	*Smilax australis*	N	0.1	1		
-	*Verbena rigida*	E	0.5	100		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.
Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*
Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 3

		Survey Name	Zone ID	Recorders			
Date	04/12/2018	Nightcap	PCT 1073 Zone 1	TR & GD			
Zone 56	Datum MGAZ	**Plot ID**	T22	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 521047	Northing 6850309	**IBRA region**	SEQLD	**Midline bearing from 0 m**	165º		

Vegetation Class	North Coast Wet Sclerophyll Forests		Confidence: H M L
Plant Community Type	1073	**EEC:** NO	Confidence: H M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	16
	Shrubs	9
	Grasses etc.	4
	Forbs	5
	Ferns	1
	Other	7
Sum of **Cover** of native vascular plants by growth form group	**Trees**	90.5
	Shrubs	16.3
	Grasses etc.	30.7
	Forbs	0.9
	Ferns	5
	Other	3.9
High Threat Weed cover		0.5

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	1	1
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	79.4m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	98	98	80	95	98	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	93.8																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	1	O	Previous felling/logging present
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	1	NR	Low. Patches of Lantana present
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 3		Survey Name	Plot Identifier	Recorders
Date	04/12/2018	Nightcap	T22	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	1	4		
Tree (TG)	*Alphitonia excelsa*	N	0.1	1		
Tree (TG)	*Araucaria cunninghamii*	N	1	1		
Shrub (SG)	*Archirhodomyrtus beckleri*	N	7			
Shrub (SG)	*Breynia oblongifolia*	N	0.1	1		
Other (OG)	*Cassytha glabella*	N	0.1	1		
Other (OG)	*Cissus hypoglauca*	N	1	1		
Tree (TG)	*Corymbia intermedia*	N	10			
Tree (TG)	*Cryptocarya glaucescens*	N	0.1	2		
Tree (TG)	*Cryptocarya microneura*	N	0.1	1		
Grass& Grass-like (GG)	*Cymbopogon refractus*	N	0.1	10		
Shrub (SG)	*Denhamia silvestris*	N	0.1	1		
Forb (F)	*Desmodium rhytidophyllum*	N	0.1	15		
Forb (F)	*Desmodium gunnii*	N	0.1	1		
Forb (F)	*Dianella caerulea*	N	0.5	20		
Tree (TG)	*Elaeocarpus obovatus*	N	0.1	1		
Shrub (SG)	*Elaeocarpus reticulatus*	N	3	10		
Tree (TG)	*Eucalyptus acmenoides*	N	50			
Tree (TG)	*Eucalyptus microcorys*	N	0.5	1		
Tree (TG)	*Eucalyptus propinqua*	N	3	1		
Tree (TG)	*Euroschinus falcatus var. falcatus*	N	0.1	1		
Other (OG)	*Eustrephus latifolius*	N	0.1	5		
Other (OG)	*Glycine microphylla*	N	0.1	1		
Tree (TG)	*Guioa semiglauca*	N	0.5	2		
Other (OG)	*Hardenbergia violacea*	N	0.1	1		
Other (OG)	*Hibbertia scandens*	N	2	10		
Grass& Grass-like (GG)	*Imperata cylindrica*	N	0.5	20		
-	*Lantana camara*	HTE	0.5	10		
Shrub (SG)	*Leucopogon juniperinus*	N	2	30		
Grass& Grass-like (GG)	*Lomandra confertifolia*	N	30			
Tree (TG)	*Lophostemon confertus*	N	2	1		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	20		
Shrub (SG)	*Persoonia adenantha*	N	1	10		
Shrub (SG)	*Pittosporum undulatum*	N	0.1	1		
Tree (TG)	*Polyscias elegans*	N	0.1	7		
Forb (F)	*Pratia purpurascens*	N	0.1	1		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	50		
Fern (EG)	*Pteridium esculentum*	N	5			
Shrub (SG)	*Rhodamnia rubescens*	N	2	5		

400 m² plot: Sheet 3 of 3		Survey Name	Plot Identifier	Recorders
Date	04/12/2018	Nightcap	T22	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Other (OG)	*Smilax australis*	N	0.5	10		
Tree (TG)	*Syncarpia glomulifera*	N	15			
Tree (TG)	*Trochocarpa laurina*	N	6			
Shrub (SG)	*Zieria smithii*	N	1	50		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.
Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*
Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	17/01/2019	Nightcap	PCT 812 Zone 1	TR & GD			
Zone 56	Datum MGAZ	**Plot ID**	T23	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 520451	Northing 6851873	**IBRA region**	SEQLD	**Midline bearing from 0 m**	95º		
Vegetation Class		North Coast Wet Sclerophyll Forests				Confidence: (H) M L	
Plant Community Type		812		**EEC:** NO		Confidence: (H) M L	

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	16
	Shrubs	10
	Grasses etc.	2
	Forbs	0
	Ferns	3
	Other	5
Sum of **Cover** of native vascular plants by growth form group	**Trees**	80.2
	Shrubs	8.8
	Grasses etc.	3.1
	Forbs	0
	Ferns	10.6
	Other	0.9
High Threat Weed cover		3.5

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	1	1
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	65m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	98	100	100	85	98	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	96.2																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	2	NR	Patches of Lantana common.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	17/01/2019	Nightcap	T23	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acmena smithii*	N	2	2		
Tree (TG)	*Alphitonia excelsa*	N	2	2		
Shrub (SG)	*Archirhodomyrtus beckleri*	N	1	3		
Fern (EG)	*Blechnum cartilagineum*	N	10			
-	*Cinnamomum camphora*	HTE	0.5	1		
Other (OG)	*Cissus antarctica*	N	0.1	1		
Tree (TG)	*Corymbia intermedia*	N	5			
Tree (TG)	*Cryptocarya glaucescens*	N	1	4		
Tree (TG)	*Cryptocarya microneura*	N	20			
Shrub (SG)	*Cryptocarya rigida*	N	1	5		
Other (OG)	*Dioscorea transversa*	N	0.1	10		
Other (OG)	*Echinostephia aculeata*	N	0.1	3		
Tree (TG)	*Eucalyptus grandis*	N	20			
Tree (TG)	*Eucalyptus siderophloia*	N	2	1		
Shrub (SG)	*Eupomatia laurina*	N	1	6		
Tree (TG)	*Euroschinus falcatus var. falcatus*	N	2	6		
Tree (TG)	*Glochidion ferdinandi*	N	1	1		
Tree (TG)	*Guioa semiglauca*	N	2	6		
Shrub (SG)	*Hovea acutifolia*	N	1	10		
Tree (TG)	*Jagera pseudorhus var. pseudorhus*	N	0.1	10		
-	*Lantana camara*	HTE	3	25		
Grass& Grass-like (GG)	*Lomandra longifolia*	N	3	50		
Tree (TG)	*Lophostemon confertus*	N	10			
Other (OG)	*Morinda jasminoides*	N	0.1	3		
Tree (TG)	*Neolitsea dealbata*	N	0.5	1		
Tree (TG)	*Notelaea longifolia*	N	0.1	1		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	20		
Shrub (SG)	*Pilidiostigma glabrum*	N	0.1	1		
Fern (EG)	*Platycerium superbum*	N	0.1	3		
Tree (TG)	*Polyscias elegans*	N	0.5	1		
Fern (EG)	*Pteridium esculentum*	N	0.5	10		
Shrub (SG)	*Rhodamnia rubescens*	N	2	3		
Other (OG)	*Smilax australis*	N	0.5	20		
Tree (TG)	*Syncarpia glomulifera*	N	2	1		
Shrub (SG)	*Synoum glandulosum subsp. glandulosum*	N	0.5	1		
Shrub (SG)	*Wikstroemia indica*	N	0.1	1		
Shrub (SG)	*Wilkiea huegeliana*	N	2	3		
Shrub (SG)	*Zieria smithii*	N	0.1	6		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 3

		Survey Name	Zone ID	Recorders			
Date	17/01/2019	Nightcap	PCT 812 Zone 1	TR & GD			
Zone 56	Datum MGAZ	**Plot ID**	T24	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 519950	Northing 6852362	**IBRA region**	SEQLD	**Midline bearing from 0 m**	270º		
Vegetation Class		North Coast Wet Sclerophyll Forests				Confidence: (H) M L	
Plant Community Type		812		**EEC:** NO		Confidence: (H) M L	

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	16
	Shrubs	13
	Grasses etc.	3
	Forbs	1
	Ferns	2
	Other	9
Sum of **Cover** of native vascular plants by growth form group	**Trees**	82.4
	Shrubs	12.6
	Grasses etc.	0.4
	Forbs	0.1
	Ferns	1
	Other	2.1
High Threat Weed cover		1

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	4	0
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	19.75m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	100	100	100	99	96	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	99																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	1	O	Previous felling/logging present
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	2	NR	Patches of Lantana present in area.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 3		Survey Name	Plot Identifier	Recorders
Date	17/01/2019	Nightcap	T24	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Shrub (SG)	*Acronychia pubescens*	N	0.5	1		
Tree (TG)	*Allocasuarina torulosa*	N	2	2		
Tree (TG)	*Alphitonia excelsa*	N	0.5	1		
Tree (TG)	*Archidendron grandiflorum*	N	1	2		
Other (OG)	*Archontophoenix cunninghamiana*	N	0.1	1		
Shrub (SG)	*Archirhodomyrtus beckleri*	N	0.5	2		
Fern (EG)	*Blechnum cartilagineum*	N	0.5	20		
Other (OG)	*Cissus antarctica*	N	0.5	20		
Other (OG)	*Cordyline petiolaris*	N	0.5	2		
Tree (TG)	*Corymbia intermedia*	N	1	1		
Tree (TG)	*Cryptocarya glaucescens*	N	0.2	1		
Tree (TG)	*Cryptocarya microneura*	N	0.1	5		
Shrub (SG)	*Cupaniopsis newmanii*	N	1	2		
Shrub (SG)	*Denhamia celastroides*	N	0.1	1		
Other (OG)	*Dioscorea transversa*	N	0.1	50		
Other (OG)	*Embelia australiana*	N	0.1	2		
Tree (TG)	*Eucalyptus grandis*	N	40			
Tree (TG)	*Eucalyptus microcorys*	N	2	2		
Shrub (SG)	*Eupomatia laurina*	N	5			
Grass& Grass-like (GG)	*Gahnia aspera*	N	0.1	4		
Tree (TG)	*Glochidion ferdinandi*	N	0.1	1		
Tree (TG)	*Guioa semiglauca*	N	8			
Tree (TG)	*Flindersia schottiana*	N	0.5			
-	*Lantana camara*	HTE	1	10		
Grass& Grass-like (GG)	*Lomandra longifolia*	N	0.2	4		
Tree (TG)	*Lophostemon confertus*	N	15			
Tree (TG)	*Mallotus philippensis*	N	0.5	2		
Shrub (SG)	*Melicope hayesii*	N	0.1	2		
Other (OG)	*Melodinus acutiflorus*	N	0.1	2		
Other (OG)	*Morinda jasminoides*	N	0.1	50		
Tree (TG)	*Neolitsea dealbata*	N	0.5	2		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	50		
Other (OG)	*Parsonsia straminea*	N	0.5	10		
Shrub (SG)	*Pilidiostigma glabrum*	N	2	15		
Shrub (SG)	*Pittosporum multiflorum*	N	0.2	1		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	10		
Fern (EG)	*Pteridium esculentum*	N	0.5	10		
Shrub (SG)	*Rhodamnia rubescens*	N	1	1		
-	*Senna septemtrionalis*	E	0.1	1		

400 m² plot: Sheet 3 of 3		Survey Name	Plot Identifier	Recorders
Date	17/01/2019	Nightcap	T24	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Other (OG)	*Smilax australis*	N	0.1	1		
Tree (TG)	*Syncarpia glomulifera*	N	10			
Shrub (SG)	*Synoum glandulosum subsp. glandulosum*	N	1	5		
Tree (TG)	*Trochocarpa laurina*	N	1	2		
Shrub (SG)	*Wikstroemia indica*	N	0.1	1		
Shrub (SG)	*Wilkiea huegeliana*	N	1	6		
Shrub (SG)	*Zieria smithii*	N	0.1	1		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 3

		Survey Name	Zone ID	Recorders			
Date	28/02/2019	Nightcap	PCT 1073 Zone 1	TR & GD			
Zone 56	Datum MGAZ	**Plot ID**	T25	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 519902	Northing 6849532	**IBRA region**	SEQLD	**Midline bearing from 0 m**	198º		

Vegetation Class	North Coast Wet Sclerophyll Forests		Confidence: (H) M L
Plant Community Type	1073	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	18
	Shrubs	13
	Grasses etc.	4
	Forbs	5
	Ferns	2
	Other	11
Sum of **Cover** of native vascular plants by growth form group	**Trees**	91.9
	Shrubs	7.7
	Grasses etc.	3.7
	Forbs	1.8
	Ferns	0.6
	Other	10.3
High Threat Weed cover		5

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	4	0
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	96m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	98	99	100	99	99	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	99																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	1	O	Previous felling/logging present.
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	2	NR	Patches of Lantana present in area.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 3		Survey Name	Plot Identifier	Recorders
Date	28/02/2019	Nightcap	T25	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	0.5	5		
Tree (TG)	*Allocasuarina torulosa*	N	0.5	1		
Tree (TG)	*Alphitonia excelsa*	N	0.1	2		
Forb (F)	*Alpinia caerulea*	N	1	10		
Tree (TG)	*Araucaria cunninghamii*	N	0.1	1		
Shrub (SG)	*Breynia oblongifolia*	N	0.5	20		
Other (OG)	*Celastrus subspicata*	N	0.1	4		
Other (OG)	*Cissus antarctica*	N	0.5	20		
Tree (TG)	*Corymbia intermedia*	N	10			
Tree (TG)	*Cryptocarya glaucescens*	N	0.5	20		
Tree (TG)	*Cryptocarya microneura*	N	1	2		
Tree (TG)	*Cryptocarya obovata*	N	0.1	2		
Shrub (SG)	*Cupaniopsis newmanii*	N	0.1	1		
Shrub (SG)	*Denhamia silvestris*	N	3	50		
Forb (F)	*Desmodium rhytidophyllum*	N	0.1	1		
Forb (F)	*Desmodium gunnii*	N	0.1	1		
Forb (F)	*Dianella caerulea*	N	0.1	1		
Other (OG)	*Embelia australiana*	N	0.1	1		
Tree (TG)	*Eucalyptus acmenoides*	N	20			
Tree (TG)	*Eucalyptus microcorys*	N	15			
Tree (TG)	*Eucalyptus siderophloia*	N	5			
Shrub (SG)	*Eupomatia laurina*	N	1	10		
Tree (TG)	*Euroschinus falcatus var. falcatus*	N	0.5	1		
Other (OG)	*Eustrephus latifolius*	N	0.1	1		
Other (OG)	*Geitonoplesium cymosum*	N	0.1	2		
Other (OG)	*Glycine clandestina*	N	0.1	10		
Tree (TG)	*Guioa semiglauca*	N	4	10		
Tree (TG)	*Flindersia schottiana*	N	1	1		
Grass& Grass-like (GG)	*Imperata cylindrica*	N	3	100		
Tree (TG)	*Jagera pseudorhus var. pseudorhus*	N	0.1	20		
-	*Lantana camara*	HTE	5			
Shrub (SG)	*Leucopogon juniperinus*	N	1	10		
Grass& Grass-like (GG)	*Lomandra confertifolia*	N	0.5	10		
Grass& Grass-like (GG)	*Lomandra filiformis*	N	0.1	10		
Other (OG)	*Maclura cochinchinensis*	N	1	10		
Other (OG)	*Marsdenia rostrata*	N	0.1	5		
Other (OG)	*Morinda jasminoides*	N	0.1	1		
Shrub (SG)	*Myrsine variabilis*	N	0.5	1		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	50		

400 m² plot: Sheet 3 of 3		Survey Name	Plot Identifier	Recorders
Date	28/02/2019	Nightcap	T25	TR & GD

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Other (OG)	*Pandorea pandorana*	N	0.1	1		
Shrub (SG)	*Pittosporum multiflorum*	N	0.1	1		
Shrub (SG)	*Pittosporum undulatum*	N	0.1	1		
Fern (EG)	*Platycerium bifurcatum*	N	0.1	1		
Tree (TG)	*Polyscias elegans*	N	3	10		
Forb (F)	*Pseuderanthemum variabile*	N	0.5	50		
Shrub (SG)	*Psychotria loniceroides*	N	0.1	1		
Fern (EG)	*Pteridium esculentum*	N	0.5	10		
Shrub (SG)	*Rhodamnia rubescens*	N	0.5	1		
Other (OG)	*Smilax australis*	N	8			
Shrub (SG)	*Solanum hapalum*	N	0.1	1		
Tree (TG)	*Syncarpia glomulifera*	N	30			
Shrub (SG)	*Synoum glandulosum subsp. glandulosum*	N	0.2	3		
Tree (TG)	*Toona ciliata*	N	0.5	2		
Shrub (SG)	*Wikstroemia indica*	N	0.5	1		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.
Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*
Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	06/03/2019	Nightcap	PCT 1073 Zone 1	TR & BS			
Zone 56	Datum MGAZ	**Plot ID**	T26	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 519653	Northing 6849458	**IBRA region**	SEQLD	**Midline bearing from 0 m**	327º		
Vegetation Class		North Coast Wet Sclerophyll Forest				Confidence: (H) M L	
Plant Community Type		1073		**EEC:** NO		Confidence: (H) M L	

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	15
	Shrubs	7
	Grasses etc.	2
	Forbs	3
	Ferns	2
	Other	8
Sum of **Cover** of native vascular plants by growth form group	**Trees**	77.3
	Shrubs	8.8
	Grasses etc.	0.2
	Forbs	0.7
	Ferns	15.1
	Other	2.5
High Threat Weed cover		0.6

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	2	1
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	106m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	98	95	99	98	98	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	97.6																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	1	O	Historical felling/logging evident.
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	2	NR	Lantana common within the area.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	06/03/2019	Nightcap	T26	TR & BS

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Allocasuarina torulosa*	N	3	4		
Forb (F)	*Alpinia caerulea*	N	0.5	4		
Tree (TG)	*Araucaria cunninghamii*	N	0.1	5		
Fern (EG)	*Blechnum cartilagineum*	N	15			
Shrub (SG)	*Breynia oblongifolia*	N	0.1	1		
Other (OG)	*Celastrus subspicata*	N	0.1	1		
-	*Cinnamomum camphora*	HTE	0.1	1		
Other (OG)	*Cissus antarctica*	N	1	50		
Tree (TG)	*Corymbia intermedia*	N	10			
Tree (TG)	*Cryptocarya glaucescens*	N	0.1	1		
Shrub (SG)	*Cryptocarya rigida*	N	0.5	1		
Shrub (SG)	*Denhamia silvestris*	N	0.1	2		
Forb (F)	*Desmodium rhytidophyllum*	N	0.1	1		
Other (OG)	*Dioscorea transversa*	N	0.1	20		
Tree (TG)	*Endiandra pubens*	N	0.5	1		
Other (OG)	*Embelia australiana*	N	0.1	1		
Tree (TG)	*Eucalyptus acmenoides*	N	20			
Tree (TG)	*Eucalyptus microcorys*	N	5			
Tree (TG)	*Eucalyptus resinifera*	N	25			
Tree (TG)	*Euroschinus falcatus var. falcatus*	N	0.5	4		
Tree (TG)	*Guioa semiglauca*	N	8			
Other (OG)	*Hibbertia scandens*	N	0.1	1		
Tree (TG)	*Jagera pseudorhus var. pseudorhus*	N	0.5	4		
-	*Lantana camara*	HTE	0.5	10		
Grass& Grass-like (GG)	*Lomandra confertifolia*	N	0.1	30		
Other (OG)	*Maclura cochinchinensis*	N	0.5	10		
Other (OG)	*Morinda jasminoides*	N	0.1	10		
Tree (TG)	*Neolitsea dealbata*	N	0.1	1		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	50		
Shrub (SG)	*Pilidiostigma glabrum*	N	2	10		
Shrub (SG)	*Pittosporum undulatum*	N	0.1	1		
Fern (EG)	*Platycerium bifurcatum*	N	0.1	1		
Tree (TG)	*Polyscias elegans*	N	3	5		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	75		
Shrub (SG)	*Rhodamnia rubescens*	N	5			
Other (OG)	*Smilax australis*	N	0.5	10		
Tree (TG)	*Syncarpia glomulifera*	N	1	1		
Shrub (SG)	*Synoum glandulosum subsp. glandulosum*	N	1	6		
Tree (TG)	*Trochocarpa laurina*	N	0.5	4		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	14/03/2019	Nightcap	PCT 812 Zone 2	TR & BS			
Zone 56	Datum MGAZ	**Plot ID**	T27	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 520709	Northing 6849563	**IBRA region**	SEQLD	**Midline bearing from 0 m**	311º		
Vegetation Class		North Coast Wet Sclerophyll Forest				Confidence: (H) M L	
Plant Community Type		812		**EEC:** NO		Confidence: (H) M L	

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	13
	Shrubs	5
	Grasses etc.	3
	Forbs	1
	Ferns	1
	Other	4
Sum of **Cover** of native vascular plants by growth form group	**Trees**	55.6
	Shrubs	2.6
	Grasses etc.	0.3
	Forbs	0.1
	Ferns	3
	Other	1.3
High Threat Weed cover		50

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	0	1
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	100m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	95	99	99	99	98	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	98																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	1	O	Historical felling/logging evident.
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	3	NR	Lantana dominant within the understorey.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	14/03/2019	Nightcap	T27	TR & BS

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Allocasuarina torulosa*	N	6			
Fern (EG)	*Blechnum cartilagineum*	N	3	50		
Shrub (SG)	*Breynia oblongifolia*	N	0.5	10		
Other (OG)	*Cissus antarctica*	N	0.1	10		
Tree (TG)	*Corymbia intermedia*	N	3	2		
Tree (TG)	*Cryptocarya glaucescens*	N	1	2		
Tree (TG)	*Cryptocarya obovata*	N	0.1	1		
Shrub (SG)	*Cryptocarya rigida*	N	0.1	1		
Tree (TG)	*Eucalyptus acmenoides*	N	8			
Tree (TG)	*Eucalyptus grandis*	N	30			
Tree (TG)	*Eucalyptus microcorys*	N	3	1		
Other (OG)	*Eustrephus latifolius*	N	0.1	1		
Tree (TG)	*Guioa semiglauca*	N	1	1		
Tree (TG)	*Jagera pseudorhus var. pseudorhus*	N	0.1	5		
-	*Lantana camara*	HTE	50			
Grass& Grass-like (GG)	*Lomandra filiformis*	N	0.1	4		
Grass& Grass-like (GG)	*Lomandra longifolia*	N	0.1	4		
Tree (TG)	*Macaranga tanarius*	N	0.1	1		
Other (OG)	*Maclura cochinchinensis*	N	1	50		
Tree (TG)	*Mallotus philippensis*	N	0.2	1		
Tree (TG)	*Neolitsea dealbata*	N	0.1	1		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	150		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	100		
Shrub (SG)	*Solanum hapalum*	N	0.5	10		
Other (OG)	*Stephania japonica*	N	0.1	20		
Tree (TG)	*Syncarpia glomulifera*	N	3	10		
Shrub (SG)	*Syzygium oleosum*	N	1	2		
Shrub (SG)	*Wilkiea huegeliana*	N	0.5	1		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	14/03/2019	Nightcap	PCT 1073 Zone 1	TR & BS			
Zone 56	Datum MGAZ	**Plot ID**	T28	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 520101	Northing 6849563	**IBRA region**	SEQLD	**Midline bearing from 0 m**	156º		

Vegetation Class	North Coast Wet Sclerophyll Forest		Confidence: (H) M L
Plant Community Type	PCT 1073	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	12
	Shrubs	6
	Grasses etc.	2
	Forbs	2
	Ferns	2
	Other	8
Sum of **Cover** of native vascular plants by growth form group	**Trees**	74.8
	Shrubs	1.9
	Grasses etc.	3.1
	Forbs	0.2
	Ferns	20.1
	Other	1.6
High Threat Weed cover		6

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	2	1
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	57m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	100	98	100	99	95	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	98.4																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	2	NR	Lantana common within the area.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	14/03/2019	Nightcap	T28	TR & BS

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	0.5	2		
Tree (TG)	*Alphitonia excelsa*	N	1	3		
Other (OG)	*Archontophoenix cunninghamiana*	N	0.5	1		
Shrub (SG)	*Archirhodomyrtus beckleri*	N	0.1	2		
Fern (EG)	*Blechnum cartilagineum*	N	20			
Shrub (SG)	*Breynia oblongifolia*	N	0.5	10		
Shrub (SG)	*Denhamia silvestris*	N	1	10		
Forb (F)	*Desmodium rhytidophyllum*	N	0.1	10		
Other (OG)	*Dioscorea transversa*	N	0.1	20		
Tree (TG)	*Diploglottis australis*	N	0.5	2		
Other (OG)	*Embelia australiana*	N	0.1	1		
Tree (TG)	*Eucalyptus acmenoides*	N	40			
Tree (TG)	*Euroschinus falcatus var. falcatus*	N	2	12		
Other (OG)	*Eustrephus latifolius*	N	0.1	1		
Tree (TG)	*Glochidion ferdinandi*	N	0.2	3		
Other (OG)	*Glycine clandestina*	N	0.1	1		
Tree (TG)	*Guioa semiglauca*	N	2	5		
Tree (TG)	*Jagera pseudorhus var. pseudorhus*	N	0.1	3		
-	*Lantana camara*	HTE	6			
Shrub (SG)	*Leucopogon juniperinus*	N	0.1	5		
Grass& Grass-like (GG)	*Lomandra longifolia*	N	3	100		
Other (OG)	*Maclura cochinchinensis*	N	0.5	8		
Tree (TG)	*Mallotus philippensis*	N	0.5	2		
Other (OG)	*Morinda jasminoides*	N	0.1	5		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	30		
Tree (TG)	*Polyscias elegans*	N	2	10		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	50		
Fern (EG)	*Pteridium esculentum*	N	0.1	2		
Other (OG)	*Smilax australis*	N	0.1	20		
Shrub (SG)	*Solanum hapalum*	N	0.1	1		
Tree (TG)	*Syncarpia glomulifera*	N	25			
Shrub (SG)	*Synoum glandulosum subsp. glandulosum*	N	0.1	2		
Tree (TG)	*Toona ciliata*	N	1	2		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM SITE FIELD SURVEY FORM				SITE SHEET NUMB	1
		SURVEY/PROJECT NAM	ZONE ID	RECORDERS	
DATE	3-4-19	Nightcap	PCT 1073 Zone 1	GD&TR	
ZONE/DATUM	MGAZ56	PLOT ID	T29	PLOT DIMENTIONS	20MX50M
EASTING	NORTHING	IBRA REGION		MIDLINE BEARING	25
522619	6851526	SEQLD		PHOTOS TAKEN	YES
VEGETATION CLASS		North Coast Wet Sclerophyll Forests		CONFIDENCE:	H
PCT	1073	EEC:	NO	CONFIDENCE:	H

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		SUM VALUES	DBH CM	# TREES COUNT	# STEMS WITH HOLLOWS
Count of **Native Richness**	**Trees**	9	**80+**	2	
	Shrubs	11	**50-79**	YES	
	Grasses etc.	7	**30-49**	YES	1
	Forbs	6	**20-29**	YES	
	Ferns	1	**10-19**	YES	
	Other	7	**5-9**	YES	
Sum of **Cover** of native vascular plants by growth form group	**Trees**	67.7	**<5**	YES	
	Shrubs	13	**Length of Logs (m), (=> 10cm dia., >50cm in length)**		2
	Grasses etc.	43.3			
	Forbs	0.6			
	Ferns	0.1			
	Other	1.8			
High Threat Weed **cover**		31.1			

Counts apply when the number of tree stems within a class size is =<10. Estimates can be used when >10 (eg 10, 20, 30, 100, 200, 300).

For a multi-stemmed tree, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Subplot score (% in each)	Average of the 5 subplots
Litter cover %	90	79
	80	
	85	
	80	
	60	
Bare ground cover %		
	0	
	0	
	0	
	0	
Cryptogram cover %	0	
	0	
	0	
	0	
	0	
Rock cover %	0	
	0	
	0	
	0	
	0	

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter).

Assessors **may** also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)					
Morphological Type		Landform Element		Landform Pattern	
Lithology		Soil Surface Texture		Soil Colour	
Slope		Aspect		Site Drainage	
Microrelief		Soil Depth		Distance to nearest water and type	

Plot Disturbance	Severity Code	Age Code	Observational Evidence
Clearing (inc. logging)	1	O	Very old stumps sawn off
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	3	R	Lantana common on property
Other			

Severity: 0 = no evidence, 1 = light, 2 = moderate, 3 = severe

Age: R= recent, NR = Not Recent (3-10years), O=Old (>10 years)

400M2 PLOT SHEET 2	Date:	Survey Name	Plot Identifier	Recorders
	3-4-19	Nightcap	T29	GD&TR

GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	SPECIES IF AUTOFILL UNAVAILABLE	Native, Exotic or High Threat Exotic	Cover	Abund	stratum	voucher	family	species code	common name
Tree (TG)	Eucalyptus carnea		N	35		U		Myrtaceae	8599	Thick-leaved Mahogany
Tree (TG)	Eucalyptus propinqua		N	20.0		U		Myrtaceae	4162	Small-fruited Grey Gum
Tree (TG)	Syncarpia glomulifera		N	2	1	U		Myrtaceae	6688	Turpentine
Tree (TG)	Eucalyptus siderophloia		N	7		U		Myrtaceae	4180	Grey Ironbark
Tree (TG)	Corymbia intermedia		N	1.0	1	U		Myrtaceae	9601	Pink Bloodwood
Shrub (SG)	Breynia oblongifolia		N	5		M		Phyllanthaceae	2695	Coffee Bush
Shrub (SG)	Acacia irrorata		N	1	1	M		Fabaceae (Mimosoideae)	3794	Green Wattle
Tree (TG)	Allocasuarina torulosa		N	2	10	M		Casuarinaceae	2017	Forest Oak
HTE	Lantana camara	Lantana camara	HTE	30		M		Verbenaceae	13633	Lantana
Grass & grasslike (GG)	Imperata cylindrica		N	40.0		G		Poaceae	6803	
Shrub (SG)	Callistemon salignus		N	4.0	15	M		Myrtaceae	4015	Willow Bottlebrush
Grass & grasslike (GG)	Oplismenus aemulus		N	0.1	10	G		Poaceae	5044	
Shrub (SG)	Trema tomentosa var. aspera		N	0.5	2	M		Ulmaceae	6761	
Tree (TG)	Acacia melanoxylon		N	0.5	2	M		Fabaceae (Mimosoideae)	3824	Blackwood
Other (OG)	Stephania japonica		N	0	20	G		Menispermaceae	3690	Snake vine
Forb (FG)	Commelina diffusa		N	0.1	1	G		Commelinaceae	12880	
Forb (FG)	Desmodium rhytidophyllum		N	0.1	50	G		Fabaceae (Faboideae)	2839	
Other (OG)		Vine 1	N	1.0	5	G	√	#N/A	#N/A	#N/A
HTE	Senna pendula	Senna pendula	HTE	1.0	20	M		Fabaceae (Caesalpinioideae)	7376	easter cassia
Tree (TG)	Erythrina vespertilio		N	0.1	1	M		Fabaceae (Faboideae)	7825	Bat-wing Coral Tree
Grass & grasslike (GG)	Cyperus spp.		N	0.1	30	G		Cyperaceae	CYPE	
Grass & grasslike (GG)	Lomandra filiformis		N	1.0	20	G		Lomandraceae	6302	Wattle Matt-rush
Grass & grasslike (GG)	Themeda triandra		N	1.0	40	G		Poaceae	7770	
Shrub (SG)	Leucopogon juniperinus		N	0.2	7	G-M		Ericaceae	2623	Prickly Beard-heath
E		Weed	E	0.1	5	G	√	#N/A	#N/A	#N/A
Other (OG)	Glycine clandestina		N	0.1	1	G		Fabaceae (Faboideae)	2860	Twining glycine
Shrub (SG)	Persoonia stradbrokensis		N	2.0	4	M		Proteaceae	8596	
Forb (FG)	Centella asiatica		N	0.1	10	G		Apiaceae	1106	Indian Pennywort
Forb (FG)	Pratia purpurascens		N	0.1	20	G		Lobeliaceae	1925	Whiteroot
Other (OG)	Kennedia rubicunda		N	0.2	1	G		Fabaceae (Faboideae)	2898	Dusky Coral Pea
Grass & grasslike (GG)	Oplismenus aemulus		N	0.1	20	G		Poaceae	5044	
Shrub (SG)	Rubus moluccanus var. moluccanus		N	0.2	2	G		Rosaceae	10811	
E	Paspalum spp.	Weed	E	0.1	5	G	√	Poaceae	PASP	
Shrub (SG)	Dodonaea triquetra		N	0.2	1	M		Sapindaceae	5911	Large-leaf Hop-bush
Shrub (SG)	Myrsine variabilis		N	0.1	1	M		Myrsinaceae	11953	
Shrub (SG)	Pimelea latifolia		N	0.1	1	G		Thymelaeaceae	6180	
Shrub (SG)	Pittosporum undulatum		N	0.2	1	M		Pittosporaceae	4685	Sweet Pittosporum
Other (OG)	Hibbertia scandens		N	0.1	1	G		Dilleniaceae	2548	Climbing Guinea Flower
Grass & grasslike (GG)	Lomandra confertifolia		N	1.0	5	G		Lomandraceae	6297	Matrush
Other (OG)	Cissus antarctica		N	0.2	1	G		Vitaceae	6282	Water Vine
Other (OG)	Smilax glyciphylla		N	0.1	1	G		Smilacaceae	6022	Sweet Sarsparilla
Forb (FG)	Desmodium gunnii		N	0.1	10	G		Fabaceae (Faboideae)	6621	Slender Tick-trefoil
Fern (EG)	Cheilanthes sieberi		N	0.1	10	G		Adiantaceae	10439	Rock Fern
Forb (FG)	Dianella caerulea		N	0.1	1	G		Phormiaceae	3540	Blue Flax-lily
Tree (TG)	Lophostemon confertus		N	0.1	1	M		Myrtaceae	4242	Brush Box
#N/A		Weed2		0.1	5	G	√	#N/A	#N/A	#N/A
HTE	Cinnamomum camphora	Camphor laurel	HTE	0.1	1	G		#N/A	#N/A	Camphor Laurel

BAM SITE FIELD SURVEY FORM				SITE SHEET NUMB	1
		SURVEY/PROJECT NAM	ZONE ID	RECORDERS	
DATE	3-4-19	Nightcap	PCT 812 Zone 1	GD&TR	
ZONE/DATUM	MGAZ56	PLOT ID	T30	PLOT DIMENTIONS	20MX50M
EASTING	NORTHING	IBRA REGION		MIDLINE BEARING	90
521860	6850250	SEQLD		PHOTOS TAKEN	YES
VEGETATION CLASS		North Coast Wet Sclerophyll Forests		CONFIDENCE:	H
PCT	827	EEC:	NO	CONFIDENCE:	M

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		SUM VALUES	DBH CM	# TREES COUNT	# STEMS WITH HOLLOWS
Count of **Native Richness**	Trees	11	80+	0	
	Shrubs	8	50-79	YES	
	Grasses etc.	3	30-49	YES	0
	Forbs	3	20-29	YES	
	Ferns	2	10-19	YES	
	Other	12	5-9	YES	
Sum of **Cover** of native vascular plants by growth form group	Trees	66	<5	YES	
	Shrubs	34.8	Length of Logs (m), (=> 10cm dia., >50cm in length)		22
	Grasses etc.	1.7			
	Forbs	0.3			
	Ferns	7.2			
	Other	1.8			
High Threat Weed **cover**		3			

Counts apply when the number of tree stems within a class size is =<10. Estimates can be used when >10 (eg 10, 20, 30, 100, 200, 300).

For a multi-stemmed tree, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Subplot score (% in each)	Average of the 5 subplots
Litter cover %	95	97
	100	
	95	
	95	
	100	
Bare ground cover %	0	
	0	
	0	
	0	
	0	
Cryptogram cover %	0	
	0	
	0	
	0	
	0	
Rock cover %	0	
	0	
	0	
	0	
	0	

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter).

Assessors **may** also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)					
Morphological Type		Landform Element		Landform Pattern	
Lithology		Soil Surface Texture		Soil Colour	
Slope		Aspect		Site Drainage	
Microrelief		Soil Depth		Distance to nearest water and type	

Plot Disturbance	Severity Code	Age Code	Observational Evidence
Clearing (inc. logging)	1	O	Axe marks on old stums
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness			
Other			

Severity: 0 = no evidence, 1 = light, 2 = moderate, 3 = severe

Age: R= recent, NR = Not Recent (3-10years), O=Old (>10 years)

400M2 PLOT SHEET 2	Date:	Survey Name	Plot Identifier	Recorders
	3-4-19	Nightcap	T30	GD&TR

GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	SPECIES IF AUTOFILL UNAVAILABLE	Native, Exotic or High Threat Exotic	Cover	Abund	stratum	voucher	family	species code	common name
Tree (TG)	Lophostemon confertus		N	40		U		Myrtaceae	4242	Brush Box
Tree (TG)	Eucalyptus microcorys		N	20.0		U		Myrtaceae	4128	Tallowwood
Shrub (SG)	Callistemon salignus		N	30		M		Myrtaceae	4015	Willow Bottlebrush
Tree (TG)	Eucalyptus grandis		N	2	1	U		Myrtaceae	4101	Flooded Gum
Grass & grasslike (GG)	Ottochloa gracillima		N	0.2	200	G		Poaceae	5048	
Shrub (SG)	Zieria smithii		N	1	30	M		Rutaceae	5847	Sandfly Zieria
Shrub (SG)	Breynia oblongifolia		N	1	15	M		Phyllanthaceae	2695	Coffee Bush
Grass & grasslike (GG)	Lomandra confertifolia		N	1	20	G		Lomandraceae	6297	Matrush
Tree (TG)	Acacia maidenii		N	2	5	M		Fabaceae (Mimosoideae)	3821	Maiden's Wattle
HTE	Lantana camara	Lantana camara	HTE	3	30	M		Verbenaceae	13633	Lantana
Fern (EG)	Blechnum cartilagineum		N	7.0		G		Blechnaceae	8052	Gristle Fern
Forb (FG)	Pratia purpurascens		N	0.1	50	G		Lobeliaceae	1925	Whiteroot
Forb (FG)	Centella asiatica		N	0.1	10	G		Apiaceae	1106	Indian Pennywort
Shrub (SG)	Myrsine variabilis		N	0.2	5	M		Myrsinaceae	11953	
Other (OG)	Smilax australis		N	0.2	3	G		Smilacaceae	7592	Lawyer Vine, Wait-a-while, Barbwi
Tree (TG)	Polyscias elegans		N	0	1	M		Araliaceae	1209	Celery Wood
Shrub (SG)	Archirhodomyrtus beckleri		N	2.0	15	M		Myrtaceae	3976	Rose Myrtle
Other (OG)	Echinostephia aculeata		N	0.2	5	G		Menispermaceae	11933	
Other (OG)	pseuderanthemum variabile		N	0.1	10	G		Acanthaceae	1010	Pastel Flower
Other (OG)	Guioa semiglauca		N	0.1	1	M		Sapindaceae	5917	
Tree (TG)	Glochidion ferdinandi		N	0.3	2	M		Phyllanthaceae	7866	Cheese Tree
Other (OG)	Maclura cochinchinensis		N	0.2	2	M		Moraceae	3928	Cockspur Thorn
Tree (TG)	Alphitonia excelsa		N	0.3	4	M		Rhamnaceae	7686	Red Ash
Other (OG)	Dioscorea transversa		N	0.2	20	G		Dioscoreaceae	6446	Native Yam
Tree (TG)	Cryptocarya glaucescens		N	0.5	4	M		Lauraceae	3479	Jackwood
Other (OG)	Cissus antarctica		N	0.3	5	G		Vitaceae	6282	Water Vine
Other (OG)	Geitonoplesium cymosum		N	0.1	5	G		Luzuriagaceae	6016	Scrambling Lily
Other (OG)	Morinda jasminoides		N	0.1	10	G		Rubiaceae	6860	Sweet Morinda
Shrub (SG)	Synoum glandulosum subsp. glandulosum		N	0.1	2	M		Meliaceae	11178	Scentless Rosewood
Tree (TG)	Syncarpia glomulifera		N	0.5	2	U		Myrtaceae	6688	Turpentine
Shrub (SG)	Pittosporum undulatum		N	0.5	2	M		Pittosporaceae	4685	Sweet Pittosporum
Tree (TG)	Mallotus philippensis		N	0.1	2	M		Euphorbiaceae	2735	Red Kamala
Other (OG)	Dawsonia superba var. pulchra		N	0.1	1	G		Polytrichaceae	#N/A	Giant Moss
Grass & grasslike (GG)	Lomandra longifolia		N	1.0	20	G		Lomandraceae	6308	Spiny-headed Mat-rush
Forb (FG)	Solanum spp.		N	0.1	1	G	√	Solanaceae	SOLA	
Fern (EG)	Pteridium esculentum		N	0.2	2	G-M		Dennstaedtiaceae	6403	Bracken
Other (OG)	Archontophoenix cunninghamiana		N	0.1	1	G		Arecaceae	6458	Bangalow Palm
Other (OG)	Hibbertia scandens		N	0.1	1	G		Dilleniaceae	2548	Climbing Guinea Flower
Tree (TG)	Cryptocarya obovata		N	0.1	1	G		Lauraceae	3484	Pepperberry
Shrub (SG)	Wilkiea huegeliana		N	0.5	1	M		Monimiaceae	3918	Veiny Wilkiea

BAM SITE FIELD SURVEY FORM				SITE SHEET NUMB	1
		SURVEY/PROJECT NAM	ZONE ID	RECORDERS	
DATE	3-4-19	Nightcap	PCT 1073 Zone 1	GD&TR	
ZONE/DATUM	MGAZ56	PLOT ID	T31	PLOT DIMENTIONS	20MX50M
EASTING	NORTHING	IBRA REGION		MIDLINE BEARING	91
521266	6850045	SEQLD		PHOTOS TAKEN	YES
VEGETATION CLASS		North Coast Wet Sclerophyll Forests		CONFIDENCE:	H
PCT	1073	EEC:	NO	CONFIDENCE:	H

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		SUM VALUES	DBH CM	# TREES COUNT	# STEMS WITH HOLLOWS
Count of **Native Richness**	Trees	15	80+	0	
	Shrubs	9	50-79	YES	
	Grasses etc.	4	30-49	YES	0
	Forbs	5	20-29	YES	
	Ferns	0	10-19	YES	
	Other	10	5-9	YES	
Sum of **Cover** of native vascular plants by growth form group	Trees	79.9	<5	YES	
	Shrubs	8.1	Length of Logs (m), (=> 10cm dia., >50cm in length)		109
	Grasses etc.	13.2			
	Forbs	0.5			
	Ferns	0			
	Other	4.1			
High Threat Weed **cover**		1			

Counts apply when the number of tree stems within a class size is =<10. Estimates can be used when >10 (eg 10, 20, 30, 100, 200, 300).

For a multi-stemmed tree, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Subplot score (% in each)	Average of the 5 subplots
Litter cover %	95	92
	90	
	95	
	90	
	90	
Bare ground cover %	0	
	0	
	0	
	0	
	0	
Cryptogram cover %	0	
	0	
	0	
	0	
	0	
Rock cover %	0	
	0	
	0	
	0	
	0	

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter).

Assessors **may** also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)					
Morphological Type		Landform Element		Landform Pattern	
Lithology		Soil Surface Texture		Soil Colour	
Slope		Aspect		Site Drainage	
Microrelief		Soil Depth		Distance to nearest water and type	

Plot Disturbance	Severity Code	Age Code	Observational Evidence
Clearing (inc. logging)	1	O	insaw and axe marks on old logs/stu
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness			
Other			

Severity: 0 = no evidence, 1 = light, 2 = moderate, 3 = severe

Age: R= recent, NR = Not Recent (3-10years), O=Old (>10 years)

400M2 PLOT SHEET 2	Date:	Survey Name	Plot Identifier	Recorders
	3-4-19	Nightcap	T31	GD&TR

GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	SPECIES IF AUTOFILL UNAVAILABLE	Native, Exotic or High Threat Exotic	Cover	Abund	stratum	voucher	family	species code	common name
Tree (TG)	Eucalyptus acmenoides		N	25		U		Myrtaceae	7027	White Mahogany
Tree (TG)	Eucalyptus microcorys		N	8.0		U		Myrtaceae	4128	Tallowwood
Tree (TG)	Corymbia intermedia		N	15		U		Myrtaceae	9601	Pink Bloodwood
Tree (TG)	Eucalyptus siderophloia		N	5		U		Myrtaceae	4180	Grey Ironbark
Shrub (SG)	Cryptocarya rigida		N	0.2	1	M		Lauraceae	3485	Forest Maple
Shrub (SG)	Denhamia spp.	Maytenus silverstris	N	5		M		Celastraceae	2035	
Tree (TG)	Syncarpia glomulifera		N	10		U		Myrtaceae	6688	Turpentine
HTE	Lantana camara	Lantana camara	HTE	1	20	M		Verbenaceae	13633	Lantana
Shrub (SG)	Archirhodomyrtus beckleri		N	1	10	M		Myrtaceae	3976	Rose Myrtle
Grass & grasslike (GG)	Imperata cylindrica		N	3	200	G		Poaceae	6803	
Grass & grasslike (GG)	Ottochloa gracillima		N	0.1	100	G		Poaceae	5048	
Forb (FG)	pseuderanthemum variabile		N	0.1	200	G		Acanthaceae	1010	Pastel Flower
Grass & grasslike (GG)	Entolasia stricta		N	0.1	50	G		Poaceae	4947	Wiry Panic
Shrub (SG)	Leucopogon juniperinus		N	0.5	20	G-M		Ericaceae	2623	Prickly Beard-heath
Shrub (SG)	Myrsine variabilis		N	0.1	10	G		Myrsinaceae	11953	
Tree (TG)	Guioa semiglauca		N	0	5	M		Sapindaceae	5917	
Other (OG)	Cissus hypoglauca		N	0.1	1	G-M		Vitaceae	6283	Giant Water Vine
Other (OG)	Geitonoplesium cymosum		N	0.1	5	G		Luzuriagaceae	6016	Scrambling Lily
Other (OG)	Pratia purpurascens		N	0.1	20	G		Lobeliaceae	1925	Whiteroot
Other (OG)	Bursaria spinosa		N	3.0	30	M		Pittosporaceae	4674	Native Blackthorn
Grass & grasslike (GG)	Lomandra confertifolia		N	10.0		G		Lomandraceae	6297	Matrush
Tree (TG)	Cyclophyllum longipetalum		N	7.0		M		Rubiaceae	11599	Coast Canthium
Shrub (SG)	Elaeocarpus reticulatus		N	0.5	2	M		Elaeocarpaceae	2574	Blueberry Ash
Tree (TG)	Neolitsea australiensis		N	0.1	1	M		Lauraceae	8386	Green Bolly Gum
Shrub (SG)	Zieria smithii		N	1.0	30	M		Rutaceae	5847	Sandfly Zieria
Tree (TG)	Alphitonia excelsa		N	1.0	5	M		Rhamnaceae	7686	Red Ash
Other (OG)	Pandorea pandorana		N	0.1	1	G		Bignoniaceae	1740	Wonga Wonga Vine
Forb (FG)	Desmodium gunnii		N	0.1	5	G		Fabaceae (Faboideae)	6621	Slender Tick-trefoil
Forb (FG)	Desmodium rhytidophyllum		N	0.1	30	G		Fabaceae (Faboideae)	2839	
Tree (TG)	Notelaea longifolia		N	0.2	1	M		Oleaceae	4318	Large Mock-olive
Tree (TG)	Acacia melanoxylon		N	0.1	1	M		Fabaceae (Mimosoideae)	3824	Blackwood
Forb (FG)	Dianella caerulea		N	0.1	10	G		Phormiaceae	3540	Blue Flax-lily
Shrub (SG)	Pittosporum undulatum		N	0.1	1	M		Pittosporaceae	4685	Sweet Pittosporum
Other (OG)	Dioscorea transversa		N	0.1	1	G		Dioscoreaceae	6446	Native Yam
Other (OG)	Maclura cochinchinensis		N	0.3	2	G		Moraceae	3928	Cockspur Thorn
Other (OG)	Smilax australis		N	0.1	1	G		Smilacaceae	7592	Lawyer Vine, Wait-a-while, Barbwi
Tree (TG)	Polyscias elegans		N	0.1	2	M		Araliaceae	1209	Celery Wood
Tree (TG)	Allocasuarina torulosa		N	0.1	1	M		Casuarinaceae	2017	Forest Oak
Shrub (SG)	Breynia oblongifolia		N	0.2	1	M		Phyllanthaceae	2695	Coffee Bush
Tree (TG)	Trochocarpa laurina		N	7.0		M		Ericaceae	2663	Tree Heath
Tree (TG)	Elaeocarpus obovatus		N	1.0	2	M		Elaeocarpaceae	2573	Hard Quandong
Other (OG)	Glycine clandestina		N	0.1	5	G		Fabaceae (Faboideae)	2860	Twining glycine
Forb (FG)	Alpinia caerulea		N	0.1	1	G		Zingiberaceae	6340	Native Ginger
Other (OG)	Cissus antarctica		N	0.1	2	G		Vitaceae	6282	Water Vine

BAM SITE FIELD SURVEY FORM				SITE SHEET NUMB	1
		SURVEY/PROJECT NAM	ZONE ID	RECORDERS	
DATE	3-4-19	Nightcap	PCT 1073 Zone 1	GD&TR	
ZONE/DATUM	MGAZ56	PLOT ID	T32	PLOT DIMENTIONS	20MX50M
EASTING	NORTHING	IBRA REGION		MIDLINE BEARING	168
522160	6851437	SEQLD		PHOTOS TAKEN	YES
VEGETATION CLASS		North Coast Wet Sclerophyll Forests		CONFIDENCE:	H
PCT	1073	EEC:	NO	CONFIDENCE:	H

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		SUM VALUES	DBH CM	# TREES COUNT	# STEMS WITH HOLLOWS
Count of **Native Richness**	Trees	8	80+	3	
	Shrubs	5	50-79	YES	
	Grasses etc.	9	30-49	YES	4
	Forbs	7	20-29	YES	
	Ferns	2	10-19	YES	
	Other	9	5-9	YES	
Sum of **Cover** of native vascular plants by growth form group	Trees	44.7	<5	YES	
	Shrubs	10.9	Length of Logs (m), (=> 10cm dia., >50cm in length)		88
	Grasses etc.	40.7			
	Forbs	0.7			
	Ferns	5			
	Other	2			
High Threat Weed **cover**		1			

Counts apply when the number of tree stems within a class size is =<10. Estimates can be used when >10 (eg 10, 20, 30, 100, 200, 300).

For a multi-stemmed tree, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Subplot score (% in each)	Average of the 5 subplots
Litter cover %	50	65
	60	
	50	
	90	
	75	
Bare ground cover %	0	
	0	
	0	
	0	
	0	
Cryptogram cover %	0	
	0	
	0	
	0	
	0	
Rock cover %	0	
	0	
	0	
	0	
	0	

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter).

Assessors **may** also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)					
Morphological Type		Landform Element		Landform Pattern	
Lithology		Soil Surface Texture		Soil Colour	
Slope		Aspect		Site Drainage	
Microrelief		Soil Depth		Distance to nearest water and type	

Plot Disturbance	Severity Code	Age Code	Observational Evidence
Clearing (inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/stock)			
Fire damage	1	NR	shfire scalds on old stumps. Burnt lo
Storm damage	1	R	Limbfall. Grey Gum snap offs.
Weediness			
Other			

Severity: 0 = no evidence, 1 = light, 2 = moderate, 3 = severe

Age: R= recent, NR = Not Recent (3-10years), O=Old (>10 years)

400M2 PLOT SHEET 2	Date:	Survey Name	Plot Identifier	Recorders
	3-4-19	Nightcap	T32	GD&TR

GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	SPECIES IF AUTOFILL UNAVAILABLE	Native, Exotic or High Threat Exotic	Cover	Abund	stratum	voucher	family	species code	common name
Tree (TG)	Eucalyptus propinqua		N	30.0		U		Myrtaceae	4162	Small-fruited Grey Gum
Tree (TG)	Syncarpia glomulifera		N	5.0		U		Myrtaceae	6688	Turpentine
Shrub (SG)	Dodonaea triquetra		N	10.0		M		Sapindaceae	5911	Large-leaf Hop-bush
Tree (TG)	Allocasuarina torulosa		N	2.0	10	M		Casuarinaceae	2017	Forest Oak
Grass & grasslike (GG)	Imperata cylindrica		N	30.0		G		Poaceae	6803	
Grass & grasslike (GG)	Cymbopogon refractus		N	0.1	20	G		Poaceae	2035	Barbed Wire Grass
Fern (EG)	Pteridium esculentum		N	2.0	40	N		Dennstaedtiaceae	6403	Bracken
Grass & grasslike (GG)	Lomandra longifolia		N	6.0		G		Lomandraceae	6308	Spiny-headed Mat-rush
Grass & grasslike (GG)	Lomandra confertifolia		N	1.0	20	G		Lomandraceae	6297	Matrush
Forb (FG)	Desmodium rhytidophyllum		N	0.1	30	G		Fabaceae (Faboideae)	2839	
Other (OG)	Glycine clandestina		N	0.1	5	G		Fabaceae (Faboideae)	2860	Twining glycine
Other (OG)	Hardenbergia violacea		N	0.1	2	G		Fabaceae (Faboideae)	2873	False Sarsaparilla
Forb (FG)	Pratia purpurascens		N	0.1	30	G		Lobeliaceae	1925	Whiteroot
Other (OG)	Smilax australis		N	0.2	10	G		Smilacaceae	7592	Lawyer Vine, Wait-a-while, Barbwi
HTE	Lantana camara		HTE	1.0	10	M		Verbenaeceae	6248	Lantana
Forb (FG)	Gymnostachys anceps		N	0.1	1	G		Araceae	1195	Settler's Twine
Fern (EG)	Doodia aspera		N	3.0	200	G		Blechnaceae	8064	Prickly Rasp Fern
Other (OG)	Hibbertia scandens		N	0.2	20	G		Dilleniaceae	2548	Climbing Guinea Flower
Other (OG)	Macaranga tanarius		N	0.1	5	M		Euphorbiaceae	2732	Blush Macaranga
Other (OG)	Persoonia adenantha		N	1.0	2	M		Proteaceae	8596	
Forb (FG)	Dianella caerulea		N	0.1	20	G		Phormiaceae	3540	Blue Flax-lily
Forb (FG)	Geranium homeanum		N	0.1	5	G	√	Geraniaceae	3148	
Tree (TG)	Acacia melanoxylon		N	0.5	50	M		Fabaceae (Mimosoideae)	3824	Blackwood
Grass & grasslike (GG)	Poa spp.	native	N	3.0	1	G	√	Poaceae	POA	
Tree (TG)	Eucalyptus microcorys		N	3.0	2	U		Myrtaceae	4128	Tallowwood
Tree (TG)	Corymbia intermedia		N	4.0	5	U		Myrtaceae	9601	Pink Bloodwood
Shrub (SG)	Leucopogon juniperinus		N	0.2	10	M		Ericaceae	2623	Prickly Beard-heath
Shrub (SG)	Breynia oblongifolia		N	0.5	1	M		Phyllanthaceae	2695	Coffee Bush
Tree (TG)	Glochidion ferdinandi		N	0.1	20	G		Phyllanthaceae	7866	Cheese Tree
Grass & grasslike (GG)	Lepidosperma laterale		N	0.3	1	G		Cyperaceae	6402	Variable Sword-sedge
Other (OG)	Kennedia rubicunda		N	0.1	20	G		Fabaceae (Faboideae)	2898	Dusky Coral Pea
Forb (FG)	Dianella caerulea		N	0.1	30	G		Phormiaceae	3540	Blue Flax-lily
Forb (FG)	Pseuderanthemum variabile		N	0.1	1	G		Acanthaceae	1010	Pastel Flower
Other (OG)	Entolasia stricta		N	0.1	20	G		Poaceae	4947	Wiry Panic
Shrub (SG)	Denhamia spp.	Maytenus silvestris	N	0.1	1	G		Celastraceae	DENH	
Grass & grasslike (GG)	Ottochloa gracillima		N	0.1	20	G		Poaceae	5048	
Other (OG)	Parsonsia spp.		N	0.1	1	G	√	Apocynaceae	PARS	
Grass & grasslike (GG)	Oplismenus aemulus		N	0.1	10	G		Poaceae	5044	
Shrub (SG)	Clerodendrum floribundum var. floribundum		N	0.1	1	M		Lamiaceae	12201	
Tree (TG)	Toona ciliata		N	0.1	1	M		Meliaceae	8839	Red Cedar
E		weed 1	E	0.1	1	G	√	#N/A	#N/A	#N/A
Grass & grasslike (GG)	Gahnia aspera		N	0.1	1	G		Cyperaceae	2431	Rough Saw-sedge

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	12/04/2019	Nightcap	PCT 1073 Zone 1	TR & BS			
Zone 56	Datum MGAZ	**Plot ID**	T33	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 520111	Northing 6849566	**IBRA region**	SEQLD	**Midline bearing from 0 m**	13º		

Vegetation Class	North Coast Wet Sclerophyll Forest		Confidence: (H) M L
Plant Community Type	1073	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	13
	Shrubs	5
	Grasses etc.	2
	Forbs	2
	Ferns	2
	Other	9
Sum of **Cover** of native vascular plants by growth form group	**Trees**	72.1
	Shrubs	3.4
	Grasses etc.	0.2
	Forbs	0.6
	Ferns	15.1
	Other	11.1
High Threat Weed cover		30.1

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	4	1
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	156m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	95	98	90	95	98	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	95.2																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)	1	O	Historical felling/logging evident.
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	3	NR	Lantana dominant within the understorey.
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	12/04/2019	Nightcap	T33	TR & BS

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	0.1	2		
Tree (TG)	*Allocasuarina torulosa*	N	5			
Forb (F)	*Alpinia caerulea*	N	0.5	1		
Shrub (SG)	*Archirhodomyrtus beckleri*	N	0.1	5		
Fern (EG)	*Blechnum cartilagineum*	N	15			
Shrub (SG)	*Breynia oblongifolia*	N	1	20		
Other (OG)	*Celastrus subspicata*	N	0.1	1		
-	*Cinnamomum camphora*	HTE	0.1	1		
Other (OG)	*Cissus antarctica*	N	3	100		
Other (OG)	*Cissus hypoglauca*	N	0.1	10		
Tree (TG)	*Corymbia intermedia*	N	3	2		
Shrub (SG)	*Denhamia silvestris*	N	2	50		
Other (OG)	*Dioscorea transversa*	N	0.1	2		
Tree (TG)	*Eucalyptus acmenoides*	N	50			
Tree (TG)	*Eucalyptus microcorys*	N	0.1	1		
Tree (TG)	*Eucalyptus siderophloia*	N	0.5	1		
Tree (TG)	*Euroschinus falcatus var. falcatus*	N	0.1	1		
Other (OG)	*Eustrephus latifolius*	N	0.1	50		
Grass& Grass-like (GG)	*Gahnia sieberiana*	N	0.1	1		
-	*Gomphocarpus physocarpus*	E	0.2	200		
Tree (TG)	*Guioa semiglauca*	N	3	10		
Other (OG)	*Hibbertia scandens*	N	0.1	1		
Tree (TG)	*Jagera pseudorhus var. pseudorhus*	N	2	10		
-	*Lantana camara*	HTE	30			
Grass& Grass-like (GG)	*Lomandra longifolia*	N	0.1	30		
Other (OG)	*Maclura cochinchinensis*	N	0.5	20		
Tree (TG)	*Mallotus philippensis*	N	0.1	2		
Fern (EG)	*Platycerium bifurcatum*	N	0.1	1		
Tree (TG)	*Polyscias elegans*	N	0.2	15		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	100		
Other (OG)	*Smilax australis*	N	7			
Shrub (SG)	*Solanum hapalum*	N	0.1	1		
Other (OG)	*Stephania japonica*	N	0.1	1		
Tree (TG)	*Syncarpia glomulifera*	N	6			
Shrub (SG)	*Synoum glandulosum subsp. glandulosum*	N	0.2	2		
Tree (TG)	*Toona ciliata*	N	2	10		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM SITE FIELD SURVEY FORM				SITE SHEET NUMB	1
		SURVEY/PROJECT NAM	ZONE ID	RECORDERS	
DATE	16/4/2019	Nightcap	PCT 812 Zone 2	TR/BS	
ZONE/DATUM	MGAZ56	PLOT ID	T34	PLOT DIMENTIONS	20MX50M
EASTING	NORTHING	IBRA REGION		MIDLINE BEARING	70
520539	6849795	SEQLD		PHOTOS TAKEN	YES
VEGETATION CLASS		North Coast Wet Sclerophyll Forests		CONFIDENCE:	H
PCT	812	EEC:	NO	CONFIDENCE:	H

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		SUM VALUES	DBH CM	# TREES COUNT	# STEMS WITH HOLLOWS
Count of **Native Richness**	**Trees**	14	**80+**	1	
	Shrubs	10	**50-79**	YES	
	Grasses etc.	4	**30-49**	YES	0
	Forbs	6	**20-29**	YES	
	Ferns	2	**10-19**	YES	
	Other	6	**5-9**	YES	
Sum of **Cover** of native vascular plants by growth form group	**Trees**	45.4	**<5**	YES	
	Shrubs	3.2	**Length of Logs (m), (=> 10cm dia., >50cm in length)**		53
	Grasses etc.	1.2			
	Forbs	0.7			
	Ferns	0.6			
	Other	1.1			
High Threat Weed **cover**		50.1			

Counts apply when the number of tree stems within a class size is =<10. Estimates can be used when >10 (eg 10, 20, 30, 100, 200, 300).

For a multi-stemmed tree, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Subplot score (% in each)	Average of the 5 subplots
Litter cover %	85	89
	95	
	95	
	85	
	85	
Bare ground cover %	0	
	0	
	0	
	0	
	0	
Cryptogram cover %	0	
	0	
	0	
	0	
	0	
Rock cover %	0	
	0	
	0	
	0	
	0	

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter).

Assessors **may** also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)					
Morphological Type		Landform Element		Landform Pattern	
Lithology		Soil Surface Texture		Soil Colour	
Slope		Aspect		Site Drainage	
Microrelief		Soil Depth		Distance to nearest water and type	

Plot Disturbance	Severity Code	Age Code	Observational Evidence
Clearing (inc. logging)	1	NR	
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	1	R	
Other	1	R	FERAL PIG DAMAGE

Severity: 0 = no evidence, 1 = light, 2 = moderate, 3 = severe

Age: R= recent, NR = Not Recent (3-10years), O=Old (>10 years)

400M2 PLOT SHEET 2	Date:	Survey Name	Plot Identifier	Recorders
	16/4/2019	Nightcap	T34	TR/BS

GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	SPECIES IF AUTOFILL UNAVAILABLE	Native, Exotic or High Threat Exotic	Cover	Abund	stratum	voucher	family	species code	common name
Tree (TG)	Eucalyptus acmenoides		N	20.00				Myrtaceae	7027	White Mahogany
Tree (TG)	Eucalyptus microcorys		N	6.00				Myrtaceae	4128	Tallowwood
Tree (TG)	Syncarpia glomulifera		N	2.00	2			Myrtaceae	6688	Turpentine
Tree (TG)	Eucalyptus grandis		N	10.00				Myrtaceae	4101	Flooded Gum
Tree (TG)	Alphitonia excelsa		N	3.00	20			Rhamnaceae	7686	Red Ash
Fern (EG)	Pteridium esculentum		N	0.50	10			Dennstaedtiaceae	6403	Bracken
Tree (TG)	Glochidion ferdinandi var. ferdinandi		N	1.00	10			Phyllanthaceae	9360	Cheese Tree
HTE	Lantana camara	lantana	HTE	50.00				Verbenaceae	13633	Lantana
Tree (TG)	Mallotus philippensis		N	1.00	20			Euphorbiaceae	2735	Red Kamala
Forb (FG)	Oxalis spp.	O.corniculata	N	0.10	20			Oxalidaceae	OXAL	
Grass & grasslike (GG)	Ottochloa gracillima		N	0.10	>150			Poaceae	5048	
Forb (FG)	Pseuderanthemum variabile		N	0.10	50			Acanthaceae	1010	Pastel Flower
Forb (FG)	Pratia purpurascens		N	0.10	30			Lobeliaceae	1925	Whiteroot
HTE	Ageratina riparia		HTE	0.10	>150			Asteraceae	1255	Mist weed
Grass & grasslike (GG)	Imperata cylindrica		N	0.50	>50			Poaceae	6803	
Grass & grasslike (GG)	Lomandra longifolia		N	0.50	20			Lomandraceae	6308	Spiny-headed Mat-rush
Shrub (SG)	Cryptocarya rigida		N	1.00	15			Lauraceae	3485	Forest Maple
Forb (FG)	Solanum spp.		N	0.10	10			Solanaceae	SOLA	
Tree (TG)	Toona ciliata		N	0.50	6			Meliaceae	8839	Red Cedar
Shrub (SG)	Breynia oblongifolia		N	0.50	20			Phyllanthaceae	2695	Coffee Bush
Shrub (SG)	Leucopogon juniperinus		N	0.50	40			Ericaceae	2623	Prickly Beard-heath
Grass & grasslike (GG)	Oplismenus aemulus		N	0.10	50			Poaceae	5044	
Other (OG)	Hibbertia scandens		N	0.20	20			Dilleniaceae	2548	Climbing Guinea Flower
Shrub (SG)	Rubus moluccanus var. moluccanus		N	0.10	10			Rosaceae	10811	
E	Gomphocarpus physocarpus	Gomphorcarpus physocarpus	E	0.10	5				1228	balloon cotton
Tree (TG)	Neolitsea australiensis		N	0.10	1			Lauraceae	8386	Green Bolly Gum
Tree (TG)	Araucaria cunninghamii		N	0.10	1			Araucariaceae	1213	Hoop Pine
Tree (TG)	Polyscias elegans		N	0.10	10			Araliaceae	1209	Celery Wood
Other (OG)	Maclura cochinchinensis		N	0.10	8			Moraceae	3928	Cockspur Thorn
Other (OG)	Cissus antarctica		N	0.50	20			Vitaceae	6282	Water Vine
Tree (TG)	Flindersia schottiana		N	0.50	2			Rutaceae	5796	Cudgerie
Other (OG)	Smilax australis		N	0.10	6			Smilacaceae	7592	Lawyer Vine, Wait-a-while, Barbwi
Shrub (SG)	Hovea acutifolia		N	0.10	1			Fabaceae (Faboideae)	2874	
Other (OG)	Glycine clandestina		N	0.10	10			Fabaceae (Faboideae)	2860	Twining glycine
Tree (TG)	Jagera pseudorhus var. pseudorhus		N	0.10	1			Sapindaceae	12514	Foambark Tree
Forb (FG)	Desmodium rhytidophyllum		N	0.10	20			Fabaceae (Faboideae)	2839	
Forb (FG)	Dianella revoluta		N	0.20	10			Phormiaceae	3542	Blueberry Lily, Blue Flax-Lily
Shrub (SG)	Archirhodomyrtus beckleri		N	0.10	2			Myrtaceae	3976	Rose Myrtle
Shrub (SG)	Persoonia adenantha		N	0.10	4			Proteaceae	8596	
Fern (EG)	Blechnum cartilagineum		N	0.10	50			Blechnaceae	8052	Gristle Fern
Shrub (SG)	Zieria smithii		N	0.10	3			Rutaceae	5847	Sandfly Zieria
Other (OG)	Embelia australiana		N	0.10	2			Myrsinaceae	3959	
Tree (TG)	Acacia melanoxylon		N	1.00	5			Fabaceae (Mimosoideae)	3824	Blackwood
Shrub (SG)	Rhodamnia rubescens		N	0.50	1			Myrtaceae	4283	Scrub Turpentine
Shrub (SG)	Pittosporum undulatum		N	0.20	1			Pittosporaceae	4685	Sweet Pittosporum

BAM SITE FIELD SURVEY FORM				SITE SHEET NUMBER	1
		SURVEY/PROJECT NAM	ZONE ID	RECORDERS	
DATE	1-5-19	Nightcap	Zone 1	TR	
ZONE/DATUM	MGAZ56	PLOT ID	T35	PLOT DIMENTIONS	20MX50M
EASTING	NORTHING	IBRA REGION		MIDLINE BEARING	5
521898	6850062	SEQLD		PHOTOS TAKEN	YES
VEGETATION CLASS		North Coast Wet Sclerophyll Forests		CONFIDENCE:	H
PCT	812	EEC:	NO	CONFIDENCE:	H

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		SUM VALUES	DBH CM	# TREES COUNT	# STEMS WITH HOLLOWS
Count of **Native Richness**	Trees	14	80+	0	
	Shrubs	6	50-79	YES	
	Grasses etc.	4	30-49	YES	0
	Forbs	3	20-29	YES	
	Ferns	2	10-19	YES	
	Other	7	5-9	YES	
Sum of **Cover** of native vascular plants by growth form group	Trees	86.2	<5	YES	
	Shrubs	11	Length of Logs (m), (=> 10cm dia., >50cm in length)		32
	Grasses etc.	0.5			
	Forbs	0.3			
	Ferns	3			
	Other	1.3			
High Threat Weed **cover**		2.1			

Counts apply when the number of tree stems within a class size is =<10. Estimates can be used when >10 (eg 10, 20, 30, 100, 200, 300).

For a multi-stemmed tree, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Subplot score (% in each)	Average of the 5 subplots
Litter cover %	100	98
	95	
	95	
	100	
	100	
Bare ground cover %	0	
	0	
	0	
	0	
	0	
Cryptogram cover %	0	
	0	
	0	
	0	
	0	
Rock cover %	0	
	0	
	0	
	0	
	0	

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter).

Assessors **may** also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)					
Morphological Type		Landform Element		Landform Pattern	
Lithology		Soil Surface Texture		Soil Colour	
Slope		Aspect		Site Drainage	
Microrelief		Soil Depth		Distance to nearest water and type	

Plot Disturbance	Severity Code	Age Code	Observational Evidence
Clearing (inc. logging)		O	
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness			
Other			

Severity: 0 = no evidence, 1 = light, 2 = moderate, 3 = severe

Age: R= recent, NR = Not Recent (3-10years), O=Old (>10 years)

400M2 PLOT SHEET 2	Date:	Survey Name	Plot Identifier	Recorders
	1-5-19	Nightcap	T35	TR

GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	SPECIES IF AUTOFILL UNAVAILABLE	Native, Exotic or High Threat Exotic	Cover	Abund	stratum	voucher	family	species code	common name
Tree (TG)	Lophostemon confertus		N	50.00				Myrtaceae	4242	Brush Box
Tree (TG)	Syncarpia glomulifera		N	5.00				Myrtaceae	6688	Turpentine
Tree (TG)	Eucalyptus grandis		N	4.00	3			Myrtaceae	4101	Flooded Gum
Other (OG)	Dioscorea transversa		N	0.20	50			Dioscoreaceae	6446	Native Yam
Shrub (SG)	Callistemon salignus		N	6.00				Myrtaceae	4015	Willow Bottlebrush
Tree (TG)	Corymbia intermedia		N	10.00				Myrtaceae	9601	Pink Bloodwood
Tree (TG)	Guioa semiglauca		N	5.00				Sapindaceae	5917	
Fern (EG)	Blechnum cartilagineum		N	2.00	50			Blechnaceae	8052	Gristle Fern
Shrub (SG)	Archirhodomyrtus beckleri		N	3.00	20			Myrtaceae	3976	Rose Myrtle
Forb (FG)	Pratia purpurascens		N	0.10	100			Lobeliaceae	1925	Whiteroot
Forb (FG)	Pseuderanthemum variabile		N	0.10	200			Acanthaceae	1010	Pastel Flower
Other (OG)	Maclura cochinchinensis		N	0.50	5			Moraceae	3928	Cockspur Thorn
HTE	lantana camara	lantana camara	HTE	2.00	20			Verbenaceae	6248	Lantana
Grass & grasslike (GG)	Ottochloa gracillima		N	0.10	100			Poaceae	5048	
Other (OG)	Cissus hypoglauca		N	0.20	10			Vitaceae	6283	Giant Water Vine
Tree (TG)	Eucalyptus siderophloia		N	10.00				Myrtaceae	4180	Grey Ironbark
Fern (EG)	Pteridium esculentum		N	1.00	20			Dennstaedtiaceae	6403	Bracken
Other (OG)	Cissus antarctica		N	0.10	4			Vitaceae	6282	Water Vine
Shrub (SG)	Rhodamnia rubescens		N	0.50	2			Myrtaceae	4283	Scrub Turpentine
Tree (TG)	Araucaria cunninghamii		N	0.10	1			Araucariaceae	1213	Hoop Pine
Tree (TG)	Mallotus philippensis		N	0.10	2			Euphorbiaceae	2735	Red Kamala
Other (OG)	Smilax australis		N	0.10	5			Smilacaceae	7592	Lawyer Vine, Wait-a-while, Barbwi
Tree (TG)	Jagera pseudorhus var. pseudorhus		N	0.50	10			Sapindaceae	12514	Foambark Tree
Other (OG)	Embelia australiana		N	0.10	1			Myrsinaceae	3959	
HTE	senna pendula	senna pendula	HTE	0.10	1			Fabaceae (Caesalpinioideae)	7376	easter cassia
Other (OG)	Morinda jasminoides		N	0.10	20			Rubiaceae	6860	Sweet Morinda
Forb (FG)	Centella asiatica		N	0.10	10			Apiaceae	1106	Indian Pennywort
Grass & grasslike (GG)	Gahnia sieberiana		N	0.20	5			Cyperaceae	2442	Red-fruit Saw-sedge
Grass & grasslike (GG)	Lomandra longifolia		N	0.10	2			Lomandraceae	6308	Spiny-headed Mat-rush
Tree (TG)	Allocasuarina torulosa		N	0.10	1			Casuarinaceae	2017	Forest Oak
Tree (TG)	Cupaniopsis parvifolia		N	0.10	1			Sapindaceae	5886	
Shrub (SG)	Eupomatia laurina		N	0.50	2			Eupomatiaceae	2768	Bolwarra
Shrub (SG)	Synoum glandulosum subsp. glandulosum		N	0.50	2			Meliaceae	11178	Scentless Rosewood
Shrub (SG)	Cryptocarya rigida		N	0.50	2			Lauraceae	3485	Forest Maple
Tree (TG)	Trochocarpa laurina		N	1.00	2			Ericaceae	2663	Tree Heath
Grass & grasslike (GG)	Lomandra filiformis		N	0.10	4			Lomandraceae	6302	Wattle Matt-rush
Tree (TG)	Acacia melanoxylon		N	0.10	1			Fabaceae (Mimosoideae)	3824	Blackwood
Tree (TG)	Toona ciliata		N	0.20	1			Meliaceae	8839	Red Cedar

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E**: exotic, **HTE**: high threat exotic **GF**-circle code if 'top 3'/

Cover: 0.1, 0.2, 0.3....., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover);

Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across,

0.5% cover represents an area of approximately 1.4 x 1.4 m, 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30,.....100, 200, ..., 1000, ...

BAM SITE FIELD SURVEY FORM				SITE SHEET NUMB	1
		SURVEY/PROJECT NAM	ZONE ID	RECORDERS	
DATE	1-5-19	Nightcap	Zone 1	TR	
ZONE/DATUM	MGAZ56	PLOT ID	T36	PLOT DIMENTIONS	20MX50M
EASTING	NORTHING	IBRA REGION		MIDLINE BEARING	349
521932	6850006	SEQLD		PHOTOS TAKEN	YES
VEGETATION CLASS		North Coast Wet Sclerophyll Forests		CONFIDENCE:	H
PCT	812	EEC:	NO	CONFIDENCE:	H

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		SUM VALUES	DBH CM	# TREES COUNT	# STEMS WITH HOLLOWS
Count of **Native Richness**	**Trees**	12	**80+**	1	
	Shrubs	8	**50-79**	YES	
	Grasses etc.	3	**30-49**	YES	0
	Forbs	5	**20-29**	YES	
	Ferns	4	**10-19**	YES	
	Other	11	**5-9**	YES	
Sum of **Cover** of native vascular plants by growth form group	**Trees**	69.1	**<5**	YES	
	Shrubs	6.6	**Length of Logs (m), (=> 10cm dia., >50cm in length)**		56
	Grasses etc.	0.4			
	Forbs	0.5			
	Ferns	2.4			
	Other	4.1			
High Threat Weed **cover**		2			

Counts apply when the number of tree stems within a class size is =<10. Estimates can be used when >10 (eg 10, 20, 30, 100, 200, 300).

For a multi-stemmed tree, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Subplot score (% in each)	Average of the 5 subplots
Litter cover %	100	98.6
	98	
	100	
	95	
	100	
Bare ground cover %	0	
	0	
	0	
	0	
	0	
Cryptogram cover %	0	
	0	
	0	
	0	
	0	
Rock cover %	0	
	0	
	0	
	0	
	0	

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter).

Assessors **may** also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)					
Morphological Type		Landform Element		Landform Pattern	
Lithology		Soil Surface Texture		Soil Colour	
Slope		Aspect		Site Drainage	
Microrelief		Soil Depth		Distance to nearest water and type	

Plot Disturbance	Severity Code	Age Code	Observational Evidence
Clearing (inc. logging)		O	
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness			
Other			

Severity: 0 = no evidence, 1 = light, 2 = moderate, 3 = severe

Age: R= recent, NR = Not Recent (3-10years), O=Old (>10 years)

400M2 PLOT SHEET 2	Date:	Survey Name	Plot Identifier	Recorders
	1-5-19	Nightcap	T36	TR

GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	SPECIES IF AUTOFILL UNAVAILABLE	Native, Exotic or High Threat Exotic	Cover	Abund	stratum	voucher	family	species code	common name
Tree (TG)	Lophostemon confertus		N	40.00				Myrtaceae	4242	Brush Box
Tree (TG)	Eucalyptus siderophloia		N	10.00				Myrtaceae	4180	Grey Ironbark
Tree (TG)	Corymbia intermedia		N	6.00				Myrtaceae	9601	Pink Bloodwood
Tree (TG)	Allocasuarina torulosa		N	4.00	8			Casuarinaceae	2017	Forest Oak
Shrub (SG)	Callistemon salignus		N	5.00				Myrtaceae	4015	Willow Bottlebrush
Tree (TG)	Trochocarpa laurina		N	1.00	5			Ericaceae	2663	Tree Heath
Tree (TG)	Guioa semiglauca		N	6.00				Sapindaceae	5917	
HTE	Lantana camara	Lantana camara	HTE	2.00	20			Verbenaceae	13633	Lantana
Other (OG)	Maclura cochinchinensis		N	1.00	15			Moraceae	3928	Cockspur Thorn
Tree (TG)	Mallotus philippensis		N	1.00	6			Euphorbiaceae	2735	Red Kamala
Tree (TG)	Alphitonia excelsa		N	0.50	3			Rhamnaceae	7686	Red Ash
Grass & grasslike (GG)	Gahnia sieberiana		N	0.20	10			Cyperaceae	2442	Red-fruit Saw-sedge
Shrub (SG)	Solanum stelligerum		N	0.10	1			Solanaceae	SOLA	
Forb (FG)	Pseuderanthemum variabile		N	0.10	50			Acanthaceae	1010	Pastel Flower
Forb (FG)	Pratia purpurascens		N	0.10	100			Lobeliaceae	1925	Whiteroot
Other (OG)	Embelia australiana		N	0.10	1			Myrsinaceae	3959	
Other (OG)	Breynia oblongifolia		N	0.10	1			Phyllanthaceae	2695	Coffee Bush
Other (OG)	Acacia melanoxylon		N	2.00	4			Fabaceae (Mimosoideae)	3824	Blackwood
Other (OG)	Smilax australis		N	0.10	2			Smilacaceae	7592	Lawyer Vine, Wait-a-while, Barbwi
Shrub (SG)	Myrsine variabilis		N	0.10	1			Myrsinaceae	11953	
Tree (TG)	Jagera pseudorhus var. pseudorhus		N	0.10	2			Sapindaceae	12514	Foambark Tree
Shrub (SG)	Cryptocarya rigida		N	0.50	3			Lauraceae	3485	Forest Maple
Other (OG)	Cissus antarctica		N	0.20	20			Vitaceae	6282	Water Vine
Fern (EG)	Blechnum cartilagineum		N	2.00	50			Blechnaceae	8052	Gristle Fern
Shrub (SG)	Zieria smithii		N	0.50	10			Rutaceae	5847	Sandfly Zieria
Other (OG)	Cordyline petiolaris		N	0.20	1			Asteliaceae	7386	Broad-leaved Palm Lily
Tree (TG)	Toona ciliata		N	0.30	2			Meliaceae	8839	Red Cedar
Forb (FG)	Desmodium gunnii		N	0.10	3			Fabaceae (Faboideae)	6621	Slender Tick-trefoil
Grass & grasslike (GG)	Lomandra longifolia		N	0.10	4			Lomandraceae	6308	Spiny-headed Mat-rush
Fern (EG)	Adiantum aethiopicum		N	0.10	2			Adiantaceae	7997	Common Maidenhair
Other (OG)	Pteridium esculentum		N	0.10	3			Polytrichaceae	6403	Giant Moss
Tree (TG)	Cryptocarya glaucescens		N	0.10	1			Lauraceae	3479	Jackwood
Grass & grasslike (GG)	Ottochloa gracillima		N	0.10	20			Poaceae	5048	
Other (OG)	Dioscorea transversa		N	0.10	10			Dioscoreaceae	6446	Native Yam
Shrub (SG)	Archirhodomyrtus beckleri		N	0.20	2			Myrtaceae	3976	Rose Myrtle
Tree (TG)	Araucaria cunninghamii		N	0.10	1			Araucariaceae	1213	Hoop Pine
Forb (FG)	Centella asiatica		N	0.10	10			Apiaceae	1106	Indian Pennywort
Other (OG)	Eustrephus latifolius		N	0.10	5			Luzuriagaceae	6015	Wombat Berry
Fern (EG)	Doodia aspera		N	0.20	20			Blechnaceae	8064	Prickly Rasp Fern
Fern (EG)	Platycerium superbum		N	0.10	1			Polypodiaceae	8161	Staghorn
E	Passiflora subpeltata		E	0.10	1			Passifloraceae	4650	White Passionflower
Shrub (SG)	Rubus moluccanus var. moluccanus		N	0.10	1			Rosaceae	10811	
Shrub (SG)	Denhamia spp.	Maytenus silvestris	N	0.10	2			Celastraceae	DENH	
Forb (FG)	Oxalis spp.		N	0.10	10			Oxalidaceae	OXAL	
Other (OG)	Cayratia clematidea		N	0.10	1			Vitaceae	6281	Slender Grape

BAM Site – Field Survey Form

Site Sheet no: 1 of 2

		Survey Name	Zone ID	Recorders			
Date	01/05/2019	Nightcap	Zone 2	TR			
Zone 56	Datum MGAZ	**Plot ID**	T37	**Plot dimensions**	20m x 50m	**Photos**	YES
Easting 519193	Northing 6851285	**IBRA region**	SEQLD	**Midline bearing from 0 m**	111º		

Vegetation Class	North Coast Wet Sclerophyll Forests		Confidence: (H) M L
Plant Community Type	812	**EEC:** NO	Confidence: (H) M L

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		Sum values
Count of **Native Richness**	**Trees**	10
	Shrubs	5
	Grasses etc.	2
	Forbs	1
	Ferns	2
	Other	4
Sum of **Cover** of native vascular plants by growth form group	**Trees**	62.7
	Shrubs	1.5
	Grasses etc.	1.1
	Forbs	0.1
	Ferns	1.1
	Other	0.4
High Threat Weed cover		75.2

BAM Attribute (1000 m² plot)		
DBH	**# Tree Stems Count**	**# Stems with Hollows**
80 + cm	0	0
50 – 79 cm	Yes	
30 – 49 cm	Yes	
20 – 29 cm	Yes	
10 – 19 cm	Yes	
5 – 9 cm	Yes	
< 5 cm	Yes	n/a
Length of logs (m) (≥10 cm diameter, >50 cm in length)	24m	

Counts apply when the **number of tree stems** within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30…, 100, 200, 300…). For a **multi-stemmed tree**, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For **hollows**, count only the presence of a stem containing hollows. For a **multi-stemmed tree**, only the largest stem is included in the count/estimate. **Stems may be dead and may be shrubs.**

BAM Attribute (1 x 1 m plots)	Litter cover (%)					Bare ground cover (%)					Cryptogam cover (%)					Rock cover (%)				
Subplot score (% in each)	50	80	60	50	75	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Average of the 5 subplots	63																			

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type		Landform Element		Landform Pattern		Microrelief	
Lithology		Soil Surface Texture		Soil Colour		Soil Depth	
Slope		Aspect		Site Drainage		Distance to nearest water and type	

Plot Disturbance	Severity code	Age code	Observational evidence:
Clearing (inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood / CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness	3	NR	Understorey dominated by Lantana
Other			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m² plot: Sheet 2 of 2		Survey Name	Plot Identifier	Recorders
Date	01/05/2019	Nightcap	T37	TR

GF Code	*Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable*	N, E or HTE	Cover	Abund	stratum	voucher
Tree (TG)	*Acacia melanoxylon*	N	1	2		
-	*Ageratina riparia*	HTE	0.2	10		
Tree (TG)	*Allocasuarina torulosa*	N	1	2		
Tree (TG)	*Alphitonia excelsa*	N	0.2	4		
Shrub (SG)	*Breynia oblongifolia*	N	0.5	10		
Other (OG)	*Cissus antarctica*	N	0.1	1		
Tree (TG)	*Corymbia intermedia*	N	2	1		
Other (OG)	*Desmodium rhytidophyllum*	N	0.1	1		
Tree (TG)	*Eucalyptus grandis*	N	40			
Tree (TG)	*Eucalyptus microcorys*	N	8			
Tree (TG)	*Euroschinus falcatus var. falcatus*	N	0.5	1		
Tree (TG)	*Glochidion ferdinandi*	N	1	3		
Tree (TG)	*Guioa semiglauca*	N	2	3		
Grass& Grass-like (GG)	*Imperata cylindrica*	N	1	20		
-	*Lantana camara*	HTE	75			
Shrub (SG)	*Leucopogon juniperinus*	N	0.2	5		
Tree (TG)	*Lophostemon confertus*	N	1	1		
Other (OG)	*Maclura cochinchinensis*	N	0.1	2		
Grass& Grass-like (GG)	*Ottochloa gracillima*	N	0.1	50		
Shrub (SG)	*Persoonia adenantha*	N	0.5	2		
Fern (EG)	*Platycerium superbum*	N	0.1	1		
Forb (F)	*Pseuderanthemum variabile*	N	0.1	20		
Fern (EG)	*Pteridium esculentum*	N	1	20		
Other (OG)	*Smilax australis*	N	0.1	3		
Tree (TG)	*Syncarpia glomulifera*	N	6	3		
Shrub (SG)	*Trema tomentosa var. aspera*	N	0.2	1		
Shrub (SG)	*Zieria smithii*	N	0.1	5		

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF – circle code** if 'top 3'.

Cover: 0.1, 0.2, 0.3, …, 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); ***Note:*** *0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m*

Abundance: 1, 2, 3, …, 10, 20, 30, … 100, 200, …, 1000, …

BAM SITE FIELD SURVEY FORM				SITE SHEET NUMBER	1
		SURVEY/PROJECT NAM	ZONE ID	RECORDERS	
DATE	1-5-19	Nightcap	Zone 1	TR	
ZONE/DATUM	MGAZ56	PLOT ID	T38	PLOT DIMENTIONS	20MX50M
EASTING	NORTHING	IBRA REGION		MIDLINE BEARING	80
523323	6851739	SEQLD		PHOTOS TAKEN	YES
VEGETATION CLASS		North Coast Wet Sclerophyll Forests		CONFIDENCE:	H
PCT	812	EEC:	NO	CONFIDENCE:	M

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		SUM VALUES	DBH CM	# TREES COUNT	# STEMS WITH HOLLOWS
Count of **Native Richness**	**Trees**	12	**80+**	1	
	Shrubs	7	**50-79**	YES	
	Grasses etc.	5	**30-49**	YES	1
	Forbs	3	**20-29**	YES	
	Ferns	5	**10-19**	YES	
	Other	8	**5-9**	YES	
Sum of **Cover** of native vascular plants by growth form group	**Trees**	50.5	**<5**	YES	
	Shrubs	8.6	**Length of Logs (m), (=> 10cm dia., >50cm in length)**		22
	Grasses etc.	7.2			
	Forbs	0.4			
	Ferns	0.9			
	Other	0.8			
High Threat Weed **cover**		8.2			

Counts apply when the number of tree stems within a class size is =<10. Estimates can be used when >10 (eg 10, 20, 30, 100, 200, 300).

For a multi-stemmed tree, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Subplot score (% in each)	Average of the 5 subplots
Litter cover %	98	98.6
	100	
	95	
	100	
	100	
Bare ground cover %	0	
	0	
	0	
	0	
	0	
Cryptogram cover %	0	
	0	
	0	
	0	
	0	
Rock cover %	0	
	0	
	0	
	0	
	0	

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter).

Assessors **may** also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)					
Morphological Type		Landform Element		Landform Pattern	
Lithology		Soil Surface Texture		Soil Colour	
Slope		Aspect		Site Drainage	
Microrelief		Soil Depth		Distance to nearest water and type	

Plot Disturbance	Severity Code	Age Code	Observational Evidence
Clearing (inc. logging)		O	
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness			
Other			

Severity: 0 = no evidence, 1 = light, 2 = moderate, 3 = severe

Age: R= recent, NR = Not Recent (3-10years), O=Old (>10 years)

400M2 PLOT SHEET 2	Date:	Survey Name	Plot Identifier	Recorders
	1-5-19	Nightcap	T38	TR

GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	SPECIES IF AUTOFILL UNAVAILABLE	Native, Exotic or High Threat Exotic	Cover	Abund	stratum	voucher	family	species code	common name
Tree (TG)	Lophostemon confertus		N	40.00				Myrtaceae	4242	Brush Box
Tree (TG)	Eucalyptus microcorys		N	5.00				Myrtaceae	4128	Tallowwood
Shrub (SG)	Callistemon salignus		N	3.00	6			Myrtaceae	4015	Willow Bottlebrush
Shrub (SG)	Zieria smithii		N	1.00	20			Rutaceae	5847	Sandfly Zieria
Grass & grasslike (GG)	Imperata cylindrica		N	3.00	50			Poaceae	6803	
HTE	lantana camara		HTE	8.00				Verbenaceae	6248	Lantana
Tree (TG)	Glochidion ferdinandi		N	1.00	4			Phyllanthaceae	7866	Cheese Tree
Tree (TG)	Jagera pseudorhus var. pseudorhus		N	0.50	20			Sapindaceae	12514	Foambark Tree
Grass & grasslike (GG)	Lomandra longifolia		N	2.00	30			Lomandraceae	6308	Spiny-headed Mat-rush
Grass & grasslike (GG)	Ottochloa gracillima		N	2.00	1000			Poaceae	5048	
Forb (FG)	Pratia purpurascens		N	0.20	200			Lobeliaceae	1925	Whiteroot
Shrub (SG)	Hovea acutifolia		N	0.50	2			Fabaceae (Faboideae)	2874	
Tree (TG)	Acacia melanoxylon		N	0.50	6			Fabaceae (Mimosoideae)	3824	Blackwood
Tree (TG)	Araucaria cunninghamii		N	0.50	2			Araucariaceae	1213	Hoop Pine
Shrub (SG)	Breynia oblongifolia		N	2.00	50			Phyllanthaceae	2695	Coffee Bush
Tree (TG)	Cupaniopsis parvifolia		N	0.20	2			Sapindaceae	5886	
Other (OG)	Eustrephus latifolius		N	0.10	10			Luzuriagaceae	6015	Wombat Berry
Tree (TG)	Toona ciliata		N	0.50	4			Meliaceae	8839	Red Cedar
Other (OG)	Maclura cochinchinensis		N	0.10	3			Moraceae	3928	Cockspur Thorn
Shrub (SG)	Persoonia adenantha		N	1.00	2			Proteaceae	8684	
Shrub (SG)	Leucopogon juniperinus		N	1.00	10			Ericaceae	2623	Prickly Beard-heath
Grass & grasslike (GG)	Themeda triandra		N	0.10	1			Poaceae	7770	
Grass & grasslike (GG)	Oplismenus aemulus		N	0.10	10			Poaceae	5044	
Fern (EG)	Pteridium esculentum		N	0.10	3			Dennstaedtiaceae	6403	Bracken
Tree (TG)	Neolitsea dealbata		N	0.20	4			Lauraceae	3499	Hairy-leaved Bolly Gum
HTE	senna pendula	senna pendula	HTE	0.10	2			Fabaceae (Caesalpinioideae)	7376	easter cassia
Tree (TG)	Guioa semiglauca		N	1.00	1			Sapindaceae	5917	
Other (OG)	Cissus hypoglauca		N	0.10	3			Vitaceae	6283	Giant Water Vine
Tree (TG)	Mallotus philippensis		N	0.10	1			Euphorbiaceae	2735	Red Kamala
Tree (TG)	Gossia bidwillii		N	1.00	1			Myrtaceae	11398	Python Tree
Fern (EG)	Adiantum aethiopicum		N	0.10	2			Adiantaceae	7997	Common Maidenhair
Other (OG)	Stephania japonica		N	0.10	3			Menispermaceae	3690	Snake vine
Other (OG)	Glycine tabacina		N	0.10	1			Fabaceae (Faboideae)	2861	Variable Glycine
Other (OG)	Cissus antarctica		N	0.10	1			Vitaceae	6282	Water Vine
E		verbena?	E	0.10	1			#N/A	#N/A	#N/A
Other (OG)	Hibbertia scandens		N	0.10	1			Dilleniaceae	2548	Climbing Guinea Flower
HTE	Cinnamomum camphora	Cinnamomum camphora	HTE	0.10	3			Lauraceae	3471	Camphor Laurel
Fern (EG)	Adiantum hispidulum		N	0.10	10			Adiantaceae	8000	Rough Maidenhair
Fern (EG)	Doodia aspera		N	0.50	20			Blechnaceae	8064	Prickly Rasp Fern
Fern (EG)	Blechnum cartilagineum		N	0.10	10			Blechnaceae	8052	Gristle Fern
Shrub (SG)	Myrsine variabilis		N	0.10	1			Myrsinaceae	11953	
Forb (FG)	Desmodium gunnii		N	0.10	20			Fabaceae (Faboideae)	6621	Slender Tick-trefoil
Forb (FG)	Geranium homeanum		E	0.10	2			Geraniaceae	3148	
Other (OG)	Kennedia rubicunda		N	0.10	1			Fabaceae (Faboideae)	2898	Dusky Coral Pea

BAM SITE FIELD SURVEY FORM				SITE SHEET NUMBER	1
		SURVEY/PROJECT NAM	ZONE ID	RECORDERS	
DATE	1-5-19	Nightcap	Zone 2	TR	
ZONE/DATUM	MGAZ56	PLOT ID	T39	PLOT DIMENTIONS	20MX50M
EASTING	NORTHING	IBRA REGION		MIDLINE BEARING	40
523552	6851697	SEQLD		PHOTOS TAKEN	YES
VEGETATION CLASS		North Coast Wet Sclerophyll Forests		CONFIDENCE:	H
PCT	812	EEC:	NO	CONFIDENCE:	H

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		SUM VALUES	DBH CM	# TREES COUNT	# STEMS WITH HOLLOWS
Count of **Native Richness**	Trees	6	80+	2	
	Shrubs	2	50-79	YES	
	Grasses etc.	7	30-49	YES	0
	Forbs	4	20-29	YES	
	Ferns	2	10-19	YES	
	Other	8	5-9	YES	
Sum of **Cover** of native vascular plants by growth form group	Trees	73.7	<5	YES	
	Shrubs	3.5	Length of Logs (m), (=> 10cm dia., >50cm in length)		16
	Grasses etc.	5.9			
	Forbs	0.4			
	Ferns	0.7			
	Other	2.5			
High Threat Weed **cover**		47			

Counts apply when the number of tree stems within a class size is =<10. Estimates can be used when >10 (eg 10, 20, 30, 100, 200, 300).

For a multi-stemmed tree, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Subplot score (% in each)	Average of the 5 subplots
Litter cover %	80	89
	85	
	95	
	95	
	90	
Bare ground cover %	0	
	0	
	0	
	0	
	0	
Cryptogram cover %	0	
	0	
	0	
	0	
	0	
Rock cover %	0	
	0	
	0	
	0	
	0	

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter).

Assessors **may** also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)					
Morphological Type		Landform Element		Landform Pattern	
Lithology		Soil Surface Texture		Soil Colour	
Slope		Aspect		Site Drainage	
Microrelief		Soil Depth		Distance to nearest water and type	

Plot Disturbance	Severity Code	Age Code	Observational Evidence
Clearing (inc. logging)	1	NR	some historical logging
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness			
Other			gully @ ~45m mark

Severity: 0 = no evidence, 1 = light, 2 = moderate, 3 = severe

Age: R= recent, NR = Not Recent (3-10years), O=Old (>10 years)

400M2 PLOT SHEET 2	Date:	Survey Name	Plot Identifier	Recorders
	1-5-19	Nightcap	T39	TR

GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	SPECIES IF AUTOFILL UNAVAILABLE	Native, Exotic or High Threat Exotic	Cover	Abund	stratum	voucher	family	species code	common name
Tree (TG)	Lophostemon confertus		N	70.00				Myrtaceae	4242	Brush Box
Tree (TG)	Brachychiton acerifolius		N	1.00	1			Sterculiaceae	6126	Illawarra Flame Tree
HTE	lantana camara	lantana camara	HTE	40.00				Verbenaceae	6248	Lantana
Tree (TG)	Mallotus philippensis			1.00	10			Euphorbiaceae	2735	Red Kamala
Grass & grasslike (GG)	Ottochloa gracillima		N	2.00	1000			Poaceae	5048	
HTE	senna pendula	senna pendula	HTE	6.00				Fabaceae (Caesalpinioideae)	7376	easter cassia
Shrub (SG)	Breynia oblongifolia		N	3.00	30			Phyllanthaceae	2695	Coffee Bush
Grass & grasslike (GG)	Imperata cylindrica		N	3.00	100			Poaceae	6803	
E	Paspalum mandiocanum		E	1.00	20			Poaceae	PASP	
Grass & grasslike (GG)	Cymbopogon refractus		N	0.10	1			Poaceae	4841	Barbed Wire Grass
Other (OG)	Stephania japonica		N	0.50	20			Menispermaceae	3690	Snake vine
Fern (EG)	Adiantum aethiopicum		N	0.50	50			Adiantaceae	7997	Common Maidenhair
Other (OG)	Maclura cochinchinensis		N	1.00	20			Moraceae	3928	Cockspur Thorn
Grass & grasslike (GG)	Gahnia sieberiana		N	0.50	20			Cyperaceae	2442	Red-fruit Saw-sedge
Tree (TG)	Acacia melanoxylon		N	1.00	3			Fabaceae (Mimosoideae)	3824	Blackwood
Other (OG)	Cissus antarctica		N	0.50	10			Vitaceae	6282	Water Vine
Other (OG)	Eustrephus latifolius		N	0.10	20			Luzuriagaceae	6015	Wombat Berry
Tree (TG)	Alphitonia excelsa		N	0.20	4			Rhamnaceae	7686	Red Ash
Grass & grasslike (GG)	Cyperus spp.		N	0.10	10			Cyperaceae	CYPE	
Shrub (SG)	Leucopogon juniperinus		N	0.50	10			Ericaceae	2623	Prickly Beard-heath
Grass & grasslike (GG)	Oplismenus aemulus		N	0.10	50			Poaceae	5044	
Forb (FG)	Oxalis spp.		N	0.10	2			Oxalidaceae	OXAL	
HTE	Ligustrum sinense	Ligustrum sinense	HTE	1.00	10			Oleaceae	4313	Small-leaved Privet
Tree (TG)	Cupaniopsis parvifolia		N	0.50	3			Sapindaceae	5886	
Forb (FG)		orchid?	N	0.10	1			#N/A	#N/A	#N/A
Other (OG)	Glycine clandestina		N	0.10	20			Fabaceae (Faboideae)	2860	Twining glycine
Grass & grasslike (GG)	Entolasia stricta		N	0.10	1			Poaceae	4947	Wiry Panic
Forb (FG)	Pseuderanthemum variabile		N	0.10	100			Acanthaceae	1010	Pastel Flower
Other (OG)	Caesalpinia subtropica		N	0.10	1			Fabaceae (Caesalpinioideae)	1881	Corky Prickly-vine
Other (OG)	Smilax australis		N	0.10	1			Smilacaceae	7592	Lawyer Vine, Wait-a-while, Barbwi
E	Solanum nigrum	Solanum nigrum	E	0.10	1			Solanaceae	6091	Black-berry Nightshade
Other (OG)	Dioscorea transversa		N	0.10	20			Dioscoreaceae	6446	Native Yam
Fern (EG)	Doodia aspera		N	0.20	10			Blechnaceae	8064	Prickly Rasp Fern
Forb (FG)	Pratia purpurascens		N	0.10	200			Lobeliaceae	1925	Whiteroot

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E**: exotic, **HTE**: high threat exotic **GF**-circle code if 'top 3'/

Cover: 0.1, 0.2, 0.3....., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover);

Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across,

0.5% cover represents an area of approximately 1.4 x 1.4 m, 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30,.....100, 200, ..., 1000, ...

BAM SITE FIELD SURVEY FORM				SITE SHEET NUMBER	1
		SURVEY/PROJECT NAM	ZONE ID	RECORDERS	
DATE	1-5-19	Nightcap	Zone 2	TR	
ZONE/DATUM	MGAZ56	PLOT ID	T40	PLOT DIMENTIONS	20MX50M
EASTING	NORTHING	IBRA REGION		MIDLINE BEARING	203
523547	6851749	SEQLD		PHOTOS TAKEN	YES
VEGETATION CLASS		North Coast Wet Sclerophyll Forests		CONFIDENCE:	H
PCT	812	EEC:	NO	CONFIDENCE:	H

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m² plot)		SUM VALUES	DBH CM	# TREES COUNT	# STEMS WITH HOLLOWS
Count of **Native Richness**	Trees	11	80+	2	
	Shrubs	7	50-79	YES	
	Grasses etc.	4	30-49	YES	1
	Forbs	1	20-29	YES	
	Ferns	1	10-19	YES	
	Other	5	5-9	YES	
Sum of **Cover** of native vascular plants by growth form group	Trees	57.6	<5	YES	
	Shrubs	2.5	Length of Logs (m), (=> 10cm dia., >50cm in length)		33
	Grasses etc.	2.7			
	Forbs	0.1			
	Ferns	0.1			
	Other	0.9			
High Threat Weed **cover**		67			

Counts apply when the number of tree stems within a class size is =<10. Estimates can be used when >10 (eg 10, 20, 30, 100, 200, 300).

For a multi-stemmed tree, only the largest living stem is included in the count/estimate. **Tree stems must be living.**

For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Subplot score (% in each)	Average of the 5 subplots
Litter cover %	95	97.4
	95	
	100	
	98	
	99	
Bare ground cover %	0	
	0	
	0	
	0	
	0	
Cryptogram cover %	0	
	0	
	0	
	0	
	0	
Rock cover %	0	
	0	
	0	
	0	
	0	

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter).

Assessors **may** also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)					
Morphological Type		Landform Element		Landform Pattern	
Lithology		Soil Surface Texture		Soil Colour	
Slope		Aspect		Site Drainage	
Microrelief		Soil Depth		Distance to nearest water and type	

Plot Disturbance	Severity Code	Age Code	Observational Evidence
Clearing (inc. logging)			
Cultivation (inc. pasture)			
Soil erosion			
Firewood/CWD removal			
Grazing (identify native/stock)			
Fire damage			
Storm damage			
Weediness			
Other			

Severity: 0 = no evidence, 1 = light, 2 = moderate, 3 = severe

Age: R= recent, NR = Not Recent (3-10years), O=Old (>10 years)

400M2 PLOT SHEET 2	Date:	Survey Name	Plot Identifier	Recorders
	1-5-19	Nightcap	T40	TR

GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	SPECIES IF AUTOFILL UNAVAILABLE	Native, Exotic or High Threat Exotic	Cover	Abund	stratum	voucher	family	species code	common name
Tree (TG)	Lophostemon confertus		N	40.00				Myrtaceae	4242	Brush Box
Tree (TG)	Corymbia intermedia		N	13.00				Myrtaceae	9601	Pink Bloodwood
Tree (TG)	Guioa semiglauca		N	2.00	4			Sapindaceae	5917	
HTE	lantana camara	lantana camara	HTE	60.00				Verbenaceae	6248	Lantana
HTE	Ageratina riparia	Ageratina riparia	HTE	5.00				Asteraceae	1256	Mistflower
Tree (TG)	Mallotus philippensis		N	1.00	10			Euphorbiaceae	2735	Red Kamala
Other (OG)	Maclura cochinchinensis		N	0.10	5			Moraceae	3928	Cockspur Thorn
Shrub (SG)	Hibiscus heterophyllus		N	0.50	3			Malvaceae	3645	Pink Hibiscus
Fern (EG)	Adiantum aethiopicum		N	0.10	10			Adiantaceae	7997	Common Maidenhair
HTE	senna pendula	senna pendula	HTE	2.00	20			Fabaceae (Caesalpinioideae)	7376	easter cassia
Shrub (SG)	Breynia oblongifolia		N	1.00	20			Phyllanthaceae	2695	Coffee Bush
Grass & grasslike (GG)	Ottochloa gracillima		N	2.00	1000			Poaceae	5048	
E	Paspalum mandiocanum		E	0.50	20			Poaceae	PASP	
Grass & grasslike (GG)	Cyperus spp.		N	0.10	30			Cyperaceae	CYPE	
Shrub (SG)	Myrsine variabilis		N	0.10	2			Myrsinaceae	11953	
Shrub (SG)	Leucopogon juniperinus		N	0.10	6			Ericaceae	2623	Prickly Beard-heath
Shrub (SG)	Pittosporum undulatum		N	0.50	4			Pittosporaceae	4685	Sweet Pittosporum
Tree (TG)	Scolopia braunii		N	0.10	1			Flacourtiaceae	3110	Flintwood
Tree (TG)	Araucaria cunninghamii		N	0.10	1			Araucariaceae	1213	Hoop Pine
Tree (TG)	Alphitonia excelsa		N	0.10	1			Rhamnaceae	7686	Red Ash
Other (OG)	Morinda jasminoides		N	0.10	1			Rubiaceae	6860	Sweet Morinda
Tree (TG)	Cupaniopsis parvifolia		N	0.20	3			Sapindaceae	5886	
Other (OG)	Eustrephus latifolius		N	0.10	10			Luzuriagaceae	6015	Wombat Berry
Tree (TG)	Jagera pseudorhus var. pseudorhus		N	0.50	6			Sapindaceae	12514	Foambark Tree
Tree (TG)	Glochidion ferdinandi		N	0.50	4			Phyllanthaceae	7866	Cheese Tree
Shrub (SG)	Synoum glandulosum subsp. glandulosum		N	0.10	1			Meliaceae	11178	Scentless Rosewood
Grass & grasslike (GG)	Gahnia aspera		N	0.50	20			Cyperaceae	2431	Rough Saw-sedge
Shrub (SG)	Archirhodomyrtus beckleri		N	0.20	3			Myrtaceae	3976	Rose Myrtle
Other (OG)	Cissus hypoglauca		N	0.50	2			Vitaceae	6283	Giant Water Vine
Other (OG)	Smilax australis		N	0.10	1			Smilacaceae	7592	Lawyer Vine, Wait-a-while, Barbwi
E	Ardisia crenata	Ardisia crenata	E	0.10	1			Myrsinaceae	10694	Coralberry
Grass & grasslike (GG)	Lomandra longifolia		N	0.10	2			Lomandraceae	6308	Spiny-headed Mat-rush
Tree (TG)	Grevillea robusta		N	0.10	3			Proteaceae	5396	Silky Oak
Forb (FG)	Pratia purpurascens		N	0.10	200			Lobeliaceae	1925	Whiteroot

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E**: exotic, **HTE**: high threat exotic **GF**-circle code if 'top 3'/

Cover: 0.1, 0.2, 0.3....., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover);

Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across,

0.5% cover represents an area of approximately 1.4 x 1.4 m, 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30,.....100, 200, ..., 1000, ...

Appendix 8: Response to Tweed Shire Council's DCP A19

Controls	Comments
Habitat Retention	
C1. The following biodiversity elements and the associated ecological setbacks (including any native vegetation therein) are red flagged and must be retained on site: • Bushland: o Listed ecological communities (EECs); o Over-cleared vegetation types; o Over-cleared landscapes; o Old growth; o Important wetlands; o Other wetlands; o Other bushland on a slope greater than 18 degrees[e]; and o Pre-existing protected habitat. • Wildlife Corridors: o Land within a defined wildlife corridor. • Threatened and Significant Species: o Areas within a species polygon for threatened fauna or other significant fauna that are known or predicted to occur at the site; and o Area within a species polygon for threatened flora or other significant flora that are known to occur at the site. • Koala Habitat: o Core Koala habitat; o Primary or Secondary (class A) koala habitat; o Isolated or scattered primary koala food trees with evidence of koala activity; and o Any other areas where koalas are present. • Waterways and Riparian Areas o First order stream; o Second order stream; o Third order stream; o Fourth order stream; and o Estuarine area. • Flying Fox Camps:	**Bushland:** Incursions into the red flagged areas and associated ecological setbacks in proposed. The majority of these areas are plantation areas, cleared/modified areas, or areas currently in poor condition. It is acknowledged that some areas of vegetation occurring within the proposed developable areas are in good condition and contains habitat for threatened species. These areas will be adequately offset through the Biodiversity Offsets Scheme (BOS) as described within the BDAR. An EEC is mapped on the subject site (i.e. PCT 1302). This EEC has been retained and well buffered from the proposed developable areas. No areas considered to represent a wetland occurs within the site. Several dams occur within the site which are proposed to be retained. No important wetlands are mapped over the site. PCT 1302 is an over-cleared vegetation type and has been mapped (refer to Figure 12 of the BDAR). This PCT is well removed from the proposed developable areas (>200m). No over-cleared vegetation types occur within the proposed developable areas. No over-cleared landscapes occur within the proposed developable areas. Bushland on slopes greater than 18 degrees will be required to be removed in order to achieve bushfire. Impacts associated with this have been compensated through BOS and proposed restoration works. No areas of pre-existing habitat occur within the proposed developable areas.

Controls	Comments
○ Year round or intermittently occupied flying fox camp. • Other Habitat Features: ○ Very large native trees[f]; ○ Stags and hollow-bearing trees[f]; and ○ Raptor nests. [a] See Dictionary for definitions of italicised terms [b] Where more than one red flag applies or an ecological setback/buffer is specified in another adopted plan or policy (e.g. a locality plan), the larger ecological setback/buffer shall be used. [c] A further development setback of 100m is required to separate residential, commercial and educational buildings - see development control C23 d Distances measured from the top of the bank of the waterway [e] See http://www.tweed.nsw.gov.au/Mapping for indicative mapping of steep land f A larger development setback may need to be considered to prevent damage to built structures in the event of tree or stag fall.	**Wildlife Corridors:** It is noted that areas of the site have been nominated as being located within a 'regional corridor' which links Mebbin National Park to Nightcap National Park (refer to Figure 9 of the BDAR). Such is connected to Border Ranges National Park and Wollumbin National Park. The 'regional corridor' occurring through the site traverse significant areas of plantation which are dominated by Lantana (*Lantana camara*) up to 2m in height. These areas provide low ecological values and likely hinders movement opportunities for non-volant fauna species. In addition to this, the proposed future dam inundation area (Figure 4 of the BDAR) provides a significant barrier for ground-dwelling fauna species that are reluctant to swim. The future dam inundation area entirely dissects the existing mapped 'regional corridor'. Reviewing the above, it is considered a more suitable location for the 'regional corridor' occurs along the southern portions of the subject site which bypasses the future inundation areas, plantation proposal footprint and eventually re-connects to the existing 'regional corridor' (refer to Figure 9 of the BDAR). The quality of vegetation within these areas are superior as to those within the existing 'regional corridor' traversing the site. These retained areas of the subject site will be incorporated into a biodiversity stewardship site. Local fauna movement will be retained with over 800ha of connected native vegetation proposed for retention within the subject site. It is considered that this area is sufficient in size to retain fauna movement opportunities between local habitats. The proposed development footprint targeted existing

Controls	Comments
	modified/cleared areas and plantation where possible, retaining more than 80% of the site's native vegetation. Additionally, the proposed restoration works would provide additional habitat over time to facilitate movements of local fauna. These areas connect the site with neighbouring remnant vegetation and National Parks, allowing fauna movement opportunities across the broader landscape. **Threatened and Significant Species:** Areas within a species polygon for threatened species which will be impacted upon will be offset in accordance with the Biodiversity Offsets Scheme (BOS) through the retirement of credits. Offsets are proposed to be provided through restoration works in accordance with future management plans. This will significantly enhance areas currently infested with weeds. **Koala Habitat:** Koalas have been recorded throughout the site. The site contains Koala habitat (Eucalypt Forests) with Koala Food Trees (i.e. Tallowwood, Grey Gum). Impacts upon Koala habitat as a result of the proposal will be offset via the Biodiversity Offsets Scheme (BOS) through the retirement of credits. Details regarding this has been provided within the BDAR prepared for the proposal. The Koala Habitat Protection Guideline used to implement *SEPP (Koala Habitat Protection) 2020* was rescinded (as of Nov 2020). A Koala Plan of Management (KPoM) will be prepared at the subdivision D.A (Stage 2). The

Controls	Comments
	future KPoM will utilise the finalised and adopted criteria and principles within the *Koala Habitat Protection Guideline* once reviewed and enacted. **Waterways and Riparian Areas:** Numerous mapped streams occur within the proposed developable areas. Site investigations noted that the majority of these streams are highly disturbed as a result of years of agricultural uses and are dominated with exotic species, in particularly exotic grasses, lantana and privets. The majority of these streams which occur within the proposed developable areas are grassed swales which have been heavily disturbed over the years by cattle and agricultural uses. It is considered that these areas have low ecological values. It is noted that the majority of these mapped streams are low laying and will be inundated by the future dam. Existing crossing locations over the Tweed River will be used to minimise potential disturbances and clearing associated bridge upgrade works. Proposed restoration works as a result of this proposal will significantly enhance these areas which are currently highly disturbed. **Flying Fox Camps:** No flying-fox camps have been recorded within, or near the site with the nearest known camp occurring ~10km northeast of the site within Uki (National Flying-fox Monitoring Viewer, DoEE). **Other Habitat Features:**

Controls	Comments
	No raptor nests were recorded within, or within close proximity to the proposed developable areas. Hollow-bearing trees required to be removed to facilitate the proposal will be compensated through the installation of nest boxes within retained areas of the site. Ground hollows occurring within the proposed works footprint will be relocated within nearby retained bushland (where possible). During the more detailed subdivision stages of the development, hollow bearing trees will be identified and plotted. Where possible (i.e. complies with the bushfire requirements), hollow bearing trees will be retained.
C2. Unless adequate pre-existing biodiversity offset arrangements have been made under a Council-endorsed strategic planning process (e.g. a master plan) or a State or Federal government approval, clearing of bushland or other habitat not red flagged under C1 will generally not be supported unless all of the following apply: a) the area to be cleared is less than 5000m^2; b) the clearing does not result in a significant decrease in habitat connectivity; c) there are no other suitable locations on the site; d) an ecological setback of at least 20m is maintained; and e) adequate provision is made to compensate for any clearing in accordance with C28- C30.	No pre-existing biodiversity offsets arrangements. A BDAR has been prepared for the proposal which illustrated the required credits to be retired. As previously stated, the proposed developable areas has targeted existing modified/disturbed/cleared areas of the site, such as plantation and open paddocks. Existing roads/tracks have also been utilised to reduce the required clearing area. A future BSSAR is proposed for the retained areas of the site which will significantly enhance areas of the site which are currently highly disturbed. Unavoidable impacts will be offset via the Biodiversity Offsets Scheme (BOS).
C3. In the case of pre-existing offsetting arrangements or other biodiversity management measures secured under a Council-endorsed strategic planning	No pre-existing offsetting arrangements or other biodiversity management measures exist over the site.

Controls	Comments
process (e.g. a master plan) or a State or Federal government approval such arrangements shall be: a) implemented to the extent to which they are relevant to the development application under consideration; and b) only varied because of specific impacts of the development, changed circumstances, or new information not previously considered.	
C4. In the case of bushland or wetland vegetation on the coastal floodplain (as per Council's 1 in 100 year flood mapping – See http://www.tweed.nsw.gov.au/Mapping) consideration shall be given to increasing the ecological setbacks required under C1 to allow for future landward migration of native vegetation affected by climate change induced increases in tidal inundation and rises in the water table.	The site is not mapped under Council's 1 in 100 year flood mapping. Existing crossing locations over the Tweed River will be used to minimise potential disturbances and clearing associated bridge upgrade works.
C5. For development involving subdivision: a) a development envelope(s) is to be formally defined for created lots greater than or equal to one hectare to ensure that future development of the subdivided lot(s) avoid any relevant red flagged areas and associated ecological setbacks b) with the exception of individual very large trees, stags or hollow-bearing trees any proposed lot(s) with an area less than one hectare shall not include red flagged areas.	The proposal represents a carefully considered, master planned approach for the site to meet an increasing demand for affordable and diverse housing. Overall, the Concept Plan and framework will facilitate the future development of 10 x interconnected RLSCs spread amongst 1584ha of the Tweed Coast Hinterland. Up to 392 x dwellings will be provided across these 10 x RLSCs, along with all roads, essential services, community facilities, recreational spaces, cultural appreciation areas and ecological rehabilitation areas. Unavoidable impacts associated with the proposal will be offset in accordance with the Biodiversity Offsets Scheme (BOS). Impacts associated with the proposal has been described within the BDAR prepared for the proposal.
C6. Minor variations to the red flagged areas identified in C1 may be considered to achieve practical outcomes. Some examples include: • minor incursions into the ecological setbacks;	Incursions into the red flagged areas and associated ecological setbacks in proposed. The majority of these areas are plantation areas, cleared/modified areas, or areas currently in poor condition. It is acknowledged that some areas

Controls	Comments
• ecological setbacks arising from adjoining land not in the same ownership; • ecological setbacks that necessarily overlap with access roads or other linear infrastructure (e.g. a narrow access road that does not require clearing with bushland on both sides); • isolated patches of bushland with an area less than 1000m^2; • strips of bushland less than 10m wide; • areas in low condition with an area less than 5000m^2; • bushland dominated by exotic species; • Threatened or other significant fauna that are considered vagrant, highly nomadic or are not closely associated with habitat on the site; • Threatened or other significant flora that occur as seedlings or saplings outside of bushland habitat; • secondary (class B) koala habitat without evidence of koala activity; • areas subject to a controlled activity approval under the *Water Management Act 2000*; • stags and raptor nests where it is possible and feasible to relocate them nearby (Note, this has only been proved successful for osprey).	of vegetation occurring within the proposed developable areas are in good condition and contains habitat for threatened species. Impacts associated with the proposal will be compensated through the retirements of biodiversity credits in accordance with the Biodiversity Offsets Scheme (BOS). More than 800ha of vegetation is proposed to be retained within the overall site. Retained areas of the site will be subject to a Stewardship Agreement. A BSSAR is proposed to be prepared for these retained areas. The BSSAR will provide the type and number of credits generated by placing a Biodiversity Stewardship Agreement (BSA) over the site, as well as producing a management plan for the site, which will be included within the BSA. The BSA will include a management plan that sets out proposed annual management actions and the cost of those actions over a 20-year period, and the ongoing maintenance costs. Management actions will include fire management, native vegetation management, threatened species habitat management, pest animal control, weed management, management of human disturbances and monitoring.
C7. A minor variation referred to in C6 above must not: a) trigger a red flag in another biodiversity theme unless it also represents a variation for that theme; or b) conflict with any statutory consideration that would require the retention of the area.	Refer to the response for C6 above.
C8. A development application seeking a variation referred to in C6 above must: a) clearly identify the variation sought;	The management plan prepared as a part of the Stewardship Agreement is proposed to be implemented over a 20-year period.

Controls	Comments
b) demonstrate that alternative layouts have been considered and that the impacts cannot reasonably be avoided; c) show how the variation impact is consistent with the relevant planning principles and objectives of this Section of the DCP.	The BCT, DPIE (or equivalent Government agency at the time) and Minister will be aware of any changes to the proposed Biodiversity Stewardship Agreement or associated management plans. Appropriate steps will be applied should there be a variation to the Stewardship Agreement or associated management plans.
Protection of Retained Habitat	
C9. The following areas that are within the same lot (or lots) to which the development application applies are to be protected in perpetuity as protected habitat (refer to C9 table within Section A19 (Biodiversity and Habitat Management)).	A BDAR has been prepared for this proposal. A future BSSAR will be prepared for retained areas of the site which will be subject to a voluntary agreement under the *Biodiversity Conservation Act 2016* which will provide for the permanent protection and management of biodiversity, as well as offsetting impacts through the retirement of biodiversity credits.
Management of Protected Habitat	
C10. The following areas that are within the same lot (or lots) to which the development application applies are to be managed under an approved Habitat Management Plan (see C12) for the duration specified (refer to C10 table within Section A19 (Biodiversity and Habitat Management)).	Proposed management plans will be prepared as a part of a Stewardship Agreement to restore and increase biodiversity values within retained areas of the site. This will include weed control measures which will help remove heavily infested areas, allowing for natural regeneration to occur. Additional management plans will also be prepared and implemented during the construction and operational phase to ensure potential impacts upon retained areas are avoided. These may include (but not limited to) Vegetation Management Plan, Sediment and Erosion Control Plan, Stormwater Management Plan, Fauna Management Plan, Construction Environmental Management Plan, Bushfire Management Plan and Waste Management Plan.
C11. In cases where the protection and/or management requirements under C9 and/or C10 do not precisely match the development under consideration, the protection or management requirements shall be determined on a case by case basis generally consistent with the nature and scale of development specified in under C9 and/or C10.	Refer to response to C9 and C10 above.

Controls	Comments
C12. The Habitat Management Plan referred to in C10 above, must be prepared in accordance with Council's Habitat Management Plan Guideline as updated from time to time (see http://www.tweed.nsw.gov.au/PlanningPolicies) and include measures that: a) restore and enhance any retained bushland habitat; b) ensure that any ecological setback is managed as an ecological buffer to improve the ecological integrity of the retained bushland or other habitat feature; c) appropriately manage and control environmental weeds and pest animals as relevant to the site; d) consistent with C20 and C21 below, include bushfire management actions in retained or revegetated habitat that are directed toward maximising ecological values of the retained areas; e) in the case of any area(s) affected by wildlife corridors, improve habitat connectivity; f) in the case of any area(s) affected by any threatened flora, threatened fauna, other significant flora or other significant fauna, address their ongoing management, relative to the impacts of the development and the requirements of any relevant recovery plan; g) in the case of any area(s) affected by koala habitat, address the ongoing management of any koalas or their habitat relative to the impacts of the development considering any relevant provisions of the Tweed Coast Comprehensive Koala Plan of Management; h) acknowledge any individual koala plan of management required under SEPP 44 - Koala Habitat Protection and integrate (or cross reference) any provisions that cover the same areas as the Habitat Management Plan; i) in the case of waterways and riparian areas, ensure that: (i) the waterway itself and the associated ecological setback is managed as an ecological buffer to minimise erosion and sedimentation and/or is revegetated with native vegetation appropriate to the site, and (ii) where appropriate, livestock are excluded from accessing the waterway (except designated crossings);	The proposal would result in impacts to ~106.58ha of native vegetation but has avoided more than 800ha of native vegetation that could have yielded additional dwellings within the site. The proposed developable areas has targeted existing modified/cleared areas and plantation where possible. These areas are generally dominated by exotic species and are in poor condition. Whilst areas representing threatened species habitat is proposed to be modified/removed, more than 80% of similar native vegetation will be retained and protected. Mitigation measures such as restoration works, revegetation and nest box installation are proposed to ensure there's sufficient habitat occurring within the site. Proposed management plans will be prepared as a part of a Stewardship Agreement to restore and increase biodiversity values within retained areas of the site. The majority of the site, in particularly gullies and areas proximate to Plantation, are heavily infested with weeds (in particularly Lantana and Privets). Proposed restoration works within these areas proposes to remove weeds, allowing for natural regeneration to occur. This will ultimately improve habitat connectivity. The subject site occurs outside of the Tweed Coast Koala Management Areas. Therefore, the TCCKPoM does not apply for the proposal. Nevertheless, a Koala Plan of Management (KPoM) will be prepared for the proposal at a later stage in conjunction with the first subdivision D.A (Stage 2 of the proposal).

Controls	Comments
j) in the case of any area(s) affected by a flying fox camp, address the ongoing management of flying foxes consistent with any relevant recovery plan or applicable flying fox plan of management and integrate (or cross reference) any provisions that cover the same areas as the Habitat Management Plan; k) in the case of any other key habitat features ensure that the feature is preserved and the area is managed to encourage the continued use by fauna; l) consider the likely impacts of climate change and implement contemporary best practice management to mitigate any adverse impacts on the viability of local flora or fauna populations, or the ecological integrity of their habitats including, where relevant and possible, allowing for the landward migration of coastal, or floodplain vegetation affected by climate change induced increases in tidal inundation or rises in the water table; m) provide for the ongoing management of any biodiversity offset in accordance with C28 and/or C30 below; n) consider and effectively minimise the ongoing threats from the development in accordance with Part C below or where otherwise identified as part of the development consent process; o) where applicable, manage threats to ecological values from areas adjacent to the development site.	Unavoidable impacts to threatened species habitat will be offset in accordance with the Biodiversity Offset Scheme (BOS). A BDAR has been prepared for the proposal which illustrates this. No flying-fox camps have been recorded within, or near the site with the nearest known camp occurring ~10km northeast of the site within Uki (National Flying-fox Monitoring Viewer, DoEE). Additional management plans will also be prepared and implemented during the construction and operational phase to ensure potential impacts upon retained areas are avoided or minimized. These may include (but not limited to) Vegetation Management Plan, Sediment and Erosion Control Plan, Stormwater Management Plan, Fauna Management Plan, Construction Environmental Management Plan, Bushfire Management Plan and Waste Management Plan.
C13. Implementation of the Habitat Management Plan referred to in C10 and C12 above shall commence no later than the physical commencement of the development. In the case of staged development, implementation of the Habitat Management Plan shall clearly and proportionally reflect the staging of the development particularly in relation to the location and impacts of development.	In accordance with the Biodiversity Offsets Scheme (BOS), no activities may occur until the offset obligation has been satisfied. Once the proponent has satisfied its credit obligation (i.e. retiring the required amount of credit), then they may commence their activity in accordance with the approval.
C14. Where development consent is granted subject to final approval of a Habitat Management Plan, there shall be no physical commencement until the Habitat Management Plan has been approved by Council.	Refer to the response for C13 above.

Controls	Comments
C15. Council shall not grant consent for development subject to final approval of a Habitat Management Plan unless it is satisfied that the draft Habitat Management Plan submitted with the development application is compliant with the provisions of C12.	Noted.
C16. Council may consider accepting the dedication of lands requiring a Habitat Management Plan under C10 providing adequate arrangments are made to resource the required management actions (see also Section A5 of this DCP – Subdivision Manual).	Noted.
Additional Controls – Koala Planning	
C17. In relation to koalas and their habitat, the development control provisions (Part 5) of the Tweed Coast Comprehensive Koala Plan of Management apply to development on the Tweed Coast (see http://www.tweed.nsw.gov.au/PlanningPolicies).	The subject site occurs outside of the Tweed Coast Koala Management Areas. Therefore, the TCCKPoM does not apply for the proposal. Nevertheless, a Koala Plan of Management (KPoM) will be prepared for the proposal in conjunction with the first subdivision D.A.
C18. For development outside of the Tweed Coast: a) the provisions of State Environmental Planning Policy No. 44 - Koala Habitat Protection continue to apply, including the preparation and approval by the Department of Planning and Environment of an individual koala plan of management for land that contains core koala habitat and has an area, together with any adjoining land in the same ownership, greater than one hectare; b) other provisions of this Section of the DCP, including those relating to habitat retention (e.g. C1), formal protection (e.g. C9) and management (e.g. C10, C12) apply to koalas and their habitat.	The subject site occurs outside of the Tweed Coast Koala Management Areas. Therefore, the TCCKPoM does not apply for the proposal. Impacts upon Koala habitat as a result of the proposal will be offset via the Biodiversity Offsets Scheme (BOS) through the retirement of credits. Details regarding this has been provided within the BDAR prepared for the proposal. The Koala Habitat Protection Guideline used to implement *SEPP (Koala Habitat Protection) 2020* was rescinded (Nov 2020). A Koala Plan of Management (KPoM) will be prepared at the first subdivision D.A (Stage 2). The future KPoM will utilise the finalised criteria and principles within the *Koala Habitat Protection Guideline* once reviewed and enacted.
Additional Controls – Waterways and Riparian Areas	

Controls	Comments
C19. In relation to development adjoining waterways and riparian areas Council may, where considered appropriate require bank stabilisation works, adequate arrangements for public access, measures to minimise pollution and sedimentation and/or measures to reduce the impacts of biting insects.	Noted. Restoration works are proposed within retained areas of the site. This will include rehabilitation along retained watercourse and waterways. This will be in particularly beneficial to areas proximate the Tweed River which are currently heavily infested with weeds (i.e. Privets, Castor Oil Plant, Camphor Laurel etc.). A Preliminary Rehabilitation Plan has been prepared for the proposal. More detailed management plans will be prepared as part of a Stewardship Agreement.
Development Setbacks	
C20. Development setbacks required to manage potential bushfire risk shall not overlap with red flagged areas referred to in C1 or other retained bushland.	A Bushfire Risk Management Plan has been prepared for the proposal which has nominated Asset Protection Zones (APZs) required for the proposed development. Clearing requirements associated with APZs have been incorporated within the BDAR. These impacts will be offset through the retirement of biodiversity credits, as well as proposed restoration works within retained areas of the site.
C21. A development setback required to manage potential bushfire risk may overlap with an ecological setback to be managed as an ecological buffer in a Habitat Management Plan where: a) no more than the outer half of the ecological buffer is used for that purpose; and b) the overlap is managed to maximise ecological values within the scope of the bushfire management requirements (i.e. maintaining a minimum of 30% native tree canopy cover and a fuel reduced understorey).	Refer to the response for C20.

Controls	Comments
C22. A clearing entitlement under the NSW Rural Fire Service 10/50 Vegetation Clearing Code of Practice for NSW (or similar subsequent provision) shall be regarded as a development setback.	Refer to the response for C20.
C23. In relation to any flying fox camp, residential, commercial and educational buildings shall be located no less than 100m from the outer edge of the flying fox camp or the relevant ecological buffer where a Habitat Management Plan is required under C10. This area shall be maintained largely free of suitable flying fox roosting habitat.	N.A. No flying fox camps were noted within, or within close proximity of the subject site. The nearest known GHFF roost camp occurs ~10km northeast of the site within Uki (National Flying-fox Monitoring Viewer, DoEE).
Serious and Irreversible Impacts (SAII) under the *Biodiversity Conservation Act 2016*	
C24. If the development application is required to be accompanied by a Biodiversity Development Assessment Report (BDAR) under the Biodiversity Conservation Act 2016, the proponent, when conducting the impact assessment of potential SAII entities for serious and irreversible impacts on biodiversity values (as specified in the Biodiversity Assessment Method; BAM), shall also include an assessment of any threatened species or communities listed at http://www.tweed.nsw.gov.au/PlanningPolicies/TSC_SAII.pdf that would be impacted by the proposed development.	The Biodiversity Development Assessment Report (BDAR) prepared for the proposal has assessed potential SAII entities for serious and irreversible impacts on biodiversity values.
Measures to Avoid or Minimise Impacts under the *Biodiversity Conservation Act 2016*	
C25. For the purposes a development application affected by s7.13 of the *Biodiversity Conservation Act 2016*: a) the measures that the consent authority requires to avoid or minimise the impacts of a proposed development on biodiversity values (see s7.13(6) of the BC Act) include (but are not limited to) all controls (except C28-C30 which relate to offsets and habitat compensation) relevant to the development application contained in this Section of the DCP; and b) any avoid or minimise measures proposed in a Biodiversity Development Assessment Report (BDAR) that accompanies such an application shall be considered in the context of all matters relevant to the determination of the development application.	Measures to avoid and minimise impacts under the *Biodiversity Conservation Act 2016* has been detailed within the BDAR prepared for the proposal.

Controls	Comments
Other Acceptable Solutions	
C26. Other acceptable solutions may be appropriate (including any variations relating to development controls contained in Part C) but the applicant needs to demonstrate that: a) a clearly equivalent or superior long-term ecological outcome can be assured; and b) the variation is consistent with all relevant planning principles and objectives of this Section of the DCP.	Noted. Retained areas of the site will be subject to a Biodiversity Stewardship Agreement which will include permanent protection and management of these areas.
C27. It is strongly advised that any proposal that involves variations to the development controls in this Section of the DCP or offsetting are discussed through Council's pre-lodgement consultation process (see Part D).	Noted. Council have previously noted that a BDAR would be the most suitable pathway for the proposal. A BDAR has been prepared to support the proposed development. Impacts is proposed to be offset via the Biodiversity Offset Scheme (BOS).
Habitat Compensation and Biodiversity Offsets	
C28. If the development application under consideration is not required to be accompanied by a Biodiversity Development Assessment Report (BDAR) under the Biodiversity Conservation Act 2016, any native vegetation, threatened or other significant fauna habitat cleared, damaged, or degraded as a result of the development shall be offset or otherwise compensated for in accordance with contemporary best practice or adopted Council policy. Such areas are to be secured in perpetuity as protected habitat and managed under the Habitat Management Plan referred to in C12 above.	A BDAR has been prepared for this proposal. A future BSSAR will be prepared for retained areas of the site which will subject to a voluntary agreement under the *Biodiversity Conservation Act 2016* which will provide for the permanent protection and management of biodiversity, as well as offsetting impacts through the retirement of biodiversity credits.
C29. If the development application under consideration is not required to be accompanied by a Biodiversity Development Assessment Report (BDAR) under the Biodiversity Conservation Act 2016, any native vegetation, threatened or other significant fauna habitat cleared, damaged, or degraded as a result of the development shall be offset or otherwise compensated for in	Refer to the response for C28.

Controls	Comments
accordance with contemporary best practice or adopted Council policy. Such areas are to be secured in perpetuity as protected habitat and managed under the Habitat Management Plan referred to in C12 above.	
C30. If the development application under consideration is required to be accompanied by a Biodiversity Development Assessment Report (BDAR) under the Biodiversity Conservation Act 2016, Council may consider seeking to reduce the number of biodiversity credits by up to 50% of the number that may otherwise be required to be retired (pursuant to s7.13(4) of the BC Act) where all of the following apply: a) the offset is secured on the development site or within Tweed Shire; b) the BDAR is accompanied by a biodiversity stewardship site assessment report in accordance with Stage 3 of the BAM; c) at the proposed biodiversity stewardship site, the structural condition (as calculated using the BAM) of the tallest growth form is not more than the following proportions of the structural condition benchmarks for the relevant plant community type: i. 20% for forests ii. 30% for shrublands iii. 50% for treeless wetlands.	Noted. A BDAR has been prepared for this proposal.

Controls	Comments
Roads	
C1. Roads and associated civil infrastructure are considered part of the development envelope and their location shall be consistent with the provisions of sub-Section Part B above.	Noted. Detailed design drawings for roads and associated infrastructure will be prepared at the subdivision D.A stage of the development.
C2. In cases where Council considers that ongoing wildlife impacts are likely to arise from new or upgraded roads the proponent may be requested to carry	Noted. The proposed roads are low speed and unlikely to cause a significant fauna mortality risk. Existing roads and tracks have been utilised to minimize

Controls	Comments
out additional fauna surveys to determine the likely impacts on biodiversity and explore fauna friendly road design options such as speed limits, traffic calming, signage, exclusion fencing and fauna crossing structures (underpasses, overpasses etc.).	clearing and impacts. Wildlife signages are to be installed along roadways throughout the subject site warning drivers of wildlife. It is considered unlikely that the proposed roads will cause ongoing wildlife impacts.
C3. Where ongoing wildlife impacts are likely, the road design is to incorporate best practice fauna sensitive design features to facilitate safe unimpeded wildlife movement and minimise any other ongoing impacts on biodiversity values, paying particular attention to the requirements of any threatened fauna or other significant fauna.	Noted. Existing roads and tracks have been utilised to minimize clearing and impacts. Additionally, existing crossing locations over the Tweed River will be used to minimise potential disturbances and clearing associated bridge upgrade works. Large expansive contiguous vegetated areas of the site (>800ha) is proposed to be retained which will allow for continuous fauna movement across the landscape.
C4. Appropriate environmental safeguards are to be employed to minimise biodiversity impacts during road construction and upgrading.	Noted. Preliminary mitigation measures have been provided within the BDAR regarding the construction phase of the development. Additional safeguard measures will be provided within the CEMP prepared for the construction phase of the proposal.
C5. Measures are to be in place to ensure that any fauna sensitive road design features referred to in C3 above are monitored and maintained to minimise impacts on wildlife.	Noted. Monitoring and maintenance measures will be prepared as a part of future management plans associated with a future BSSAR.
C5. Measures are to be in place to ensure that any fauna sensitive road design features referred to in C3 above are monitored and maintained to minimise impacts on wildlife.	Noted. The proposed roads within the site will be low speed and unlikely to cause a significant fauna mortality risk. Mitigation measures (i.e. signage, speed limits etc.) are proposed.
C7. Where a Habitat Management Plan is required under Part B C10 above, any measures or related conditions of consent to mitigate road impacts on biodiversity shall be incorporated into the Habitat Management Plan and implemented accordingly.	Noted. Management plans will be prepared as a part of the BSSAR which will include mitigations/management measures for potential road impacts. Additional management measures will be prepared within the CEMP prepared for the construction phase of the proposal.
Fencing	
C8. In situations where wildlife are likely to move between areas of suitable habitat (e.g. rural residential development), fencing must be designed to	Noted. Fauna friendly fencing and exclusion fencing should be considered at the detailed design of each Stage where dwellings are proposed.

Controls	Comments
permit the free movement of native fauna (unless designed to specifically exclude such movement such as along roads).	
C9. The development design shall consider the potential impacts on biodiversity, paying particular attention to threatened fauna or other significant fauna to ensure that fencing or other structures do not inadvertently direct native animals into dangerous situations.	Noted.
C10. Fauna exclusion fencing (or other measures) shall be used where there is a significant fauna mortality risk arising from crossing from one area of suitable habitat to another (e.g. busy roads) or entering built up areas (e.g. urban development with dogs). Such measures shall be designed to minimise any other ongoing impacts on biodiversity values, paying particular attention to the requirements of any threatened fauna or other significant fauna.	Noted. The proposed roads are low speed and unlikely to cause a significant fauna mortality risk. Nevertheless, fauna exclusion fencing (or other measures) will be considered at the detailed design phase for each Stage where dwellings are proposed.
C11. Any fauna exclusion fencing or other measures (including temporary structures to perform the same task) shall be constructed and operational prior to physical commencement.	Noted.
C12. Fencing design shall include suitable clearances to maintain functionality and allow for access for replacement and routine maintenance.	Noted.
C13. All exclusion fencing, fauna friendly fencing or other structures designed to protect fauna shall be monitored and maintained to minimise impacts on wildlife.	Noted. A monitoring program will be incorporated within management plans prepared within the future BSSAR prepared for the retained areas of the site.
C14. Where appropriate, fencing, barriers or other measures shall be used to limit or control human access (e.g. motor vehicles) to environmentally sensitive areas.	Noted. Installation of signages and appropriate fencing (where applicable) will reduce the likelihood of any impacts from increased human interference that may occasionally traverse the bushland.
C15. Where a Habitat Management Plan is required under Part B C10 above, any wildlife fencing measures or related conditions of consent shall be incorporated into the Habitat Management Plan and implemented accordingly.	Noted.
Noise and Lighting	
C16. In cases where Council considers that wildlife impacts are likely to arise from noise, the proponent may be requested to carry out additional fauna surveys to determine the likely impacts on biodiversity, paying particular	Noted. Noise and lighting should be considered at the detail design of each Stage. Minimisation measures regarding noise, vibration and lighting has been provided within Table 25 of the BDAR.

Controls	Comments
attention to threatened fauna or other significant fauna, and explore appropriate mitigation measures including, but not limited to, suitable buffers to environmentally sensitive areas, traffic speed restrictions, timing of noisy activities and/or installing appropriate noise barriers.	
C17. Council shall not approve development where the impacts of noise on biodiversity values cannot be adequately mitigated	Noted.
C18. Where the development envelope contains or adjoins known bush stone curlew habitat or microbat colonies, street lighting must be of a type that does not attract insects.	No street lighting is proposed for the development.
C19. Sports field lighting (or similar high intensity outdoor lighting) shall be designed to avoid light spill into adjoining natural areas.	N/A. No sports field lighting (or similar high intensity outdoor lighting) is proposed for the development.
C20. Development adjacent to beaches must prevent lighting arising from the development spilling onto beaches to avoid potential impacts on shorebird and turtle behaviour (e.g. nesting).	N/A. The site is more than 30km from the nearest beach. It is considered highly unlikely that lighting from the site would impact shorebirds or turtle behaviour.
C21. Where a Habitat Management Plan is required under Part B C10 above, any measures or related conditions of consent to mitigate noise and lighting impacts shall be incorporated into the Habitat Management Plan and implemented accordingly.	Noted. Future management plans associated with the proposed Stewardship Agreement is proposed for retained areas of the site which will include measures to mitigate noise and lighting impacts.
Domestic Animals	
C22. Council may prohibit the keeping of domestic animals where there is unacceptable residual risk (i.e. a risk that cannot be mitigated by other measures such as exclusion fencing) arising from the development to threatened or other significant species. In such cases, Council will require: a) a restrictive covenant under Part 6 (Division 4) of the Conveyancing Act 1919 to ensure that the domestic animal(s) in question (e.g. dogs) are not kept or brought onto the allotment; and b) conditions of consent to prohibit domestic animals entering the site during construction.	Noted. To mitigate the potential impact of domestic animals on resident fauna the following is proposed to be implemented: o Cats and dogs will not be permitted to roam freely where not secured within the property boundaries; o At night (particularly), keeping the dog either indoors or in a suitable enclosure that places a physical barrier between it and Koalas (e.g. a pen, kennel, garage or house); or tethering the dog on a short leash, with the provision of appropriate shelter, food and water, to limit the area of premises where a dog could attack a Koala.

Controls	Comments
	○ If dogs are to reside within lots adjacent to retained bushland, dedicated areas must be created as dog enclosures, where dogs are confined between at night, and would need to: • Use Koala exclusion fencing around the dog's enclosure (but not the property boundary) to prohibit Koala access to the dog's area, and • Manage vegetation adjacent to fencing to ensure Koala exclusion effectiveness (i.e. no vegetation within 3 m of fencing, and maintain fence free of vegetation and materials that could be used by Koala to climb). Future management plans associated with the proposed Stewardship Agreement is proposed for retained areas of the site which will include measures to manage domestic pets.
C23. The application of condition C22 does not apply to: a) "assistance animals" as defined under the Disability Discrimination Act 1992 or b) a "working dog" as defined under the Companion Animals Act 1998, in the case of non-urban zoned land.	Noted.
C24. Where permitted, all domestic animals are to be contained within the landholders property and prevented from roaming in natural areas	Noted.
C25. For larger scale developments involving subdivision, where domestic dogs are permitted, adequate provision should be made for exercising them off leash. Such areas shall be designed to prevent dogs from accessing natural areas.	Refer to the response for C22.

Controls	Comments
C26. Where natural areas are to be dedicated to Council and they meet the criteria identified in Council's Wildlife Protection Area Policy, such areas shall be declared Wildlife Protection Areas for the purposes of the Companion Animals Act 1998.	N/A.
C27. Where a Habitat Management Plan is required under Part B C10 above, any measures or related conditions of consent to manage domestic animals shall be incorporated into the Habitat Management Plan and implemented accordingly.	Noted. Future management plans associated with the proposed Stewardship Agreement is proposed for retained areas of the site which will include measures to manage domestic pets.
Pest Animals	
C27. Where a Habitat Management Plan is required under Part B C10 above, any measures or related conditions of consent to manage domestic animals shall be incorporated into the Habitat Management Plan and implemented accordingly.	Noted. Future management plans associated with the proposed Stewardship Agreement is proposed for retained areas of the site which will include measures to manage domestic pets.
C28. Developments must be designed to minimise the likelihood of pest animal establishment/ proliferation and, where relevant, include measures to control pest animals.	Noted. The development will be designed to minimise the likelihood of pest animal establishment/proliferation. Future management plans associated with the proposed Stewardship Agreement is proposed for retained areas of the site which will include measures to manage pest animals.
C29. Standing water bodies and constructed wetlands shall be designed to minimise their suitability for cane toads and other aquatic pest species (e.g. Gambusia spp.). Such areas shall be regularly monitored and managed to contain and adequately control pest animal populations.	Cane Toads were regularly encountered onsite and are well established there. Future management plans will include rehabilitation measures for retained wetland/waterways/open water areas which will include measures to minimise the wetland/waterway areas suitability for canes toads and other aquatic pests.
C30. Where a Habitat Management Plan is required under Part B C10 above, any additional measures or related conditions of consent to manage pest animals within the development envelope shall be incorporated into the Habitat Management Plan and implemented accordingly.	Noted. Future management plans associated with the proposed Stewardship Agreement is proposed for retained areas of the site which will include measures to manage domestic pets.
C31. For developments involving subdivision a restrictive covenant under Part 6 (Division 4) of the Conveyancing Act 1919 shall be applied to prohibit the keeping of declared pest animals (foxes, rabbits etc) and/or other pest animals considered to pose a significant risk to biodiversity relevant to the site.	Noted.
Environmental Weeds	

Controls	Comments
C32. Developments must be designed to minimise the likelihood of environmental weed establishment and, where relevant, include measures to control environmental weeds.	Noted. Future management plans associated with the proposed Stewardship Agreement is proposed for retained areas of the site which will include weed management measures.
C33. Landscaping treatments for proposed public land shall be consistent with the following until such time as Tweed Shire Council Development Design Specification D14: Landscaping Public Open Space is comprehensively reviewed: a) a minimum of 80% locally occurring Australian native species and maximum of 25% non-locally occurring Australian native species to apply to all trees b) a minimum of 20% locally occurring native species and maximum of 25% Australian native or exotic species to apply to other plants (shrubs, ground cover and similar) c) where practical locally occurring native plants should exceed these amounts d) preferred turf species is Cynadon dactylon (Green Couch) with justification if an alternative species is proposed e) industry bred plants (cultivar or variety) are acceptable f) no noxious or environmental weeds are to be used.	N/A.
C34. For larger scale urban developments involving subdivision or civil works involving private land adjacent to natural areas Council may: a) require a suitable plant list to be developed and provided to all landholders at sale as a basis for landscaping; and/or	Noted. Future management plans associated with the proposed Stewardship Agreement is proposed for retained areas of the site which will include weed management measures. A Preliminary Rehabilitation Plan has been prepared for the proposal.

Controls	Comments
b) apply landscaping controls to avoid the proliferation of environmental weeds relevant to the site.	
35. Where a Habitat Management Plan is required under Part B C10 above, any additional measures or related conditions of consent to manage environmental weeds within the development envelope shall be incorporated into the Habitat Management Plan and implemented accordingly.	Noted. Future management plans associated with the proposed Stewardship Agreement is proposed which will include weed management.

Appendix 9: BAM Calculator Report

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00018768/BAAS18025/20/00022334	Nightcap on Minjungbul	20/08/2020
Assessor Name	**Report Created**	**BAM Data version ***
	19/11/2020	30
Assessor Number	**BAM Case Status**	**Date Finalised**
	Open	To be finalised
Assessment Revision	**Assessment Type**	**BOS entry trigger**
0	Part 4 Developments (General)	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	BC Act Listing status	EPBC Act listing status	Species sensitivity to gain class (for BRW)	Biodiversity risk weighting	Potential SAII	Ecosystem credits
Dunn's White Gum tall open forest of the ranges of the northern NSW North Coast Bioregion											
11	812_Stage1_Zone01	Not a TEC	72.6	72.6	1.8			High Sensitivity to Potential Gain	1.50		48
12	812_Stage4_Zone1	Not a TEC	72.8	72.8	0.49			High Sensitivity to Potential Gain	1.50		13
13	812_Stage6_Zone1	Not a TEC	72.8	72.8	0.18			High Sensitivity to Potential Gain	1.50		5

14	812_Stage7_Zone1	Not a TEC	72.8	72.8	0.14			High Sensitivity to Potential Gain	1.50		4
15	812_Stage8_Zone1	Not a TEC	72.8	72.8	0.03			High Sensitivity to Potential Gain	1.50		1
16	812_Stage9_Zone1	Not a TEC	72.8	72.8	3.2			High Sensitivity to Potential Gain	1.50		86
17	812_Stage10_Zone1	Not a TEC	72.8	72.8	0.45			High Sensitivity to Potential Gain	1.50		12
18	812_Stage11_Zone1	Not a TEC	72.8	72.8	4.5			High Sensitivity to Potential Gain	1.50		123
19	812_Stage12_Zone1	Not a TEC	72.8	72.8	1.1			High Sensitivity to Potential Gain	1.50		29
20	812_Stage1_Zone2	Not a TEC	58.6	58.6	0.19			High Sensitivity to Potential Gain	1.50		4
21	812_Stage3_Zone2	Not a TEC	58.7	58.7	0.19			High Sensitivity to Potential Gain	1.50		4
22	812_Stage4_Zone2	Not a TEC	58.7	58.7	1.2			High Sensitivity to Potential Gain	1.50		25
23	812_Stage6_Zone2	Not a TEC	58.7	58.7	0.09			High Sensitivity to Potential Gain	1.50		2
24	812_Stage8_Zone2	Not a TEC	58.7	58.7	0.63			High Sensitivity to Potential Gain	1.50		14
25	812_Stage9_Zone2	Not a TEC	58.7	58.7	0.45			High Sensitivity to Potential Gain	1.50		10
26	812_Stage10_Zone2	Not a TEC	58.7	58.7	0.19			High Sensitivity to Potential Gain	1.50		4

27	812_Stage11_Zone2	Not a TEC	58.7	58.7	0.21			High Sensitivity to Potential Gain	1.50		5
28	812_Stage12_Zone2	Not a TEC	58.7	58.7	0.67			High Sensitivity to Potential Gain	1.50		15
										Subtotal	**404**
Pink Bloodwood - Tallowwood moist open forest of the far northern ranges of the NSW North Coast Bioregion											
1	1073_Stage3_Zone1	Not a TEC	80.9	80.9	22.1			High Sensitivity to Potential Gain	1.50		671
2	1073_Stage4_1073_Zone1	Not a TEC	80.9	80.9	25.7			High Sensitivity to Potential Gain	1.50		779
3	1073_Stage5_Zone1	Not a TEC	80.9	80.9	3.5			High Sensitivity to Potential Gain	1.50		107
4	1073_Stage6_Zone1	Not a TEC	80.9	80.9	12			High Sensitivity to Potential Gain	1.50		364
5	1073_Stage7_Zone1	Not a TEC	80.9	80.9	7.4			High Sensitivity to Potential Gain	1.50		224
6	1073_Stage8_Zone1	Not a TEC	80.9	80.9	9.2			High Sensitivity to Potential Gain	1.50		279
7	1073_Stage9_Zone1	Not a TEC	80.9	80.9	8.2			High Sensitivity to Potential Gain	1.50		250
8	1073_Stage10_Zone1	Not a TEC	80.9	80.9	1.8			High Sensitivity to Potential Gain	1.50		53
9	1073_Stage11_Zone1	Not a TEC	80.9	80.9	0.01			High Sensitivity to Potential Gain	1.50		1

10	1073_Stage 12_Zone1	Not a TEC	80.9	80.9	1.1			High Sensitivity to Potential Gain	1.50		35
										Subtotal	**2763**
										Total	**3167**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Species credits
Chalinolobus dwyeri / Large-eared Pied Bat (Fauna)								
1073_Stage3_Zone 1	80.9	80.9	0	Vulnerable	Vulnerable	3	True	0
1073_Stage4_1073 _Zone1	80.9	80.9	0	Vulnerable	Vulnerable	3	True	0
1073_Stage5_Zone 1	80.9	80.9	0	Vulnerable	Vulnerable	3	True	0
1073_Stage6_Zone 1	80.9	80.9	0	Vulnerable	Vulnerable	3	True	0
1073_Stage7_Zone 1	80.9	80.9	0	Vulnerable	Vulnerable	3	True	0
1073_Stage8_Zone 1	80.9	80.9	0	Vulnerable	Vulnerable	3	True	0
1073_Stage9_Zone 1	80.9	80.9	0	Vulnerable	Vulnerable	3	True	0
1073_Stage10_Zon e1	80.9	80.9	0	Vulnerable	Vulnerable	3	True	0

1073_Stage11_Zone1	80.9	80.9	0	Vulnerable	Vulnerable	3	True	0
1073_Stage12_Zone1	80.9	80.9	0	Vulnerable	Vulnerable	3	True	0
812_Stage1_Zone01	72.6	72.6	0	Vulnerable	Vulnerable	3	True	0
812_Stage4_Zone1	72.8	72.8	0	Vulnerable	Vulnerable	3	True	0
812_Stage6_Zone1	72.8	72.8	0	Vulnerable	Vulnerable	3	True	0
812_Stage7_Zone1	72.8	72.8	0	Vulnerable	Vulnerable	3	True	0
812_Stage8_Zone1	72.8	72.8	0	Vulnerable	Vulnerable	3	True	0
812_Stage9_Zone1	72.8	72.8	0	Vulnerable	Vulnerable	3	True	0
812_Stage10_Zone1	72.8	72.8	0	Vulnerable	Vulnerable	3	True	0
812_Stage11_Zone1	72.8	72.8	0	Vulnerable	Vulnerable	3	True	0
812_Stage12_Zone1	72.8	72.8	0	Vulnerable	Vulnerable	3	True	0
812_Stage1_Zone2	58.6	58.6	0	Vulnerable	Vulnerable	3	True	0
812_Stage3_Zone2	58.7	58.7	0	Vulnerable	Vulnerable	3	True	0
812_Stage4_Zone2	58.7	58.7	0	Vulnerable	Vulnerable	3	True	0
812_Stage6_Zone2	58.7	58.7	0	Vulnerable	Vulnerable	3	True	0
812_Stage8_Zone2	58.7	58.7	0	Vulnerable	Vulnerable	3	True	0
812_Stage9_Zone2	58.7	58.7	0	Vulnerable	Vulnerable	3	True	0
812_Stage10_Zone2	58.7	58.7	0	Vulnerable	Vulnerable	3	True	0

812_Stage11_Zone 2	58.7	58.7	0	Vulnerable	Vulnerable	3	True	0
812_Stage12_Zone 2	58.7	58.7	0	Vulnerable	Vulnerable	3	True	0
							Subtotal	**0**
Endiandra muelleri subsp. bracteata / Green-leaved Rose Walnut (Flora)								
1073_Stage8_Zone 1	N/A	N/A	1	Endangered	Not Listed	3	True	3
1073_Stage9_Zone 1	N/A	N/A	7	Endangered	Not Listed	3	True	21
812_Stage9_Zone2	N/A	N/A	4	Endangered	Not Listed	3	True	12
							Subtotal	**36**
Mixophyes iteratus / Giant Barred Frog (Fauna)								
1073_Stage3_Zone 1	80.9	80.9	0	Endangered	Endangered	2	False	0
1073_Stage4_1073 _Zone1	80.9	80.9	0	Endangered	Endangered	2	False	0
1073_Stage5_Zone 1	80.9	80.9	0	Endangered	Endangered	2	False	0
1073_Stage6_Zone 1	80.9	80.9	0	Endangered	Endangered	2	False	0
1073_Stage7_Zone 1	80.9	80.9	0	Endangered	Endangered	2	False	0
1073_Stage8_Zone 1	80.9	80.9	0	Endangered	Endangered	2	False	0
1073_Stage9_Zone 1	80.9	80.9	0	Endangered	Endangered	2	False	0

1073_Stage10_Zone1	80.9	80.9	0	Endangered	Endangered	2	False	0
1073_Stage11_Zone1	80.9	80.9	0	Endangered	Endangered	2	False	0
1073_Stage12_Zone1	80.9	80.9	0	Endangered	Endangered	2	False	0
812_Stage1_Zone01	72.6	72.6	0	Endangered	Endangered	2	False	0
812_Stage4_Zone1	72.8	72.8	0	Endangered	Endangered	2	False	0
812_Stage6_Zone1	72.8	72.8	0	Endangered	Endangered	2	False	0
812_Stage7_Zone1	72.8	72.8	0	Endangered	Endangered	2	False	0
812_Stage8_Zone1	72.8	72.8	0	Endangered	Endangered	2	False	0
812_Stage9_Zone1	72.8	72.8	0	Endangered	Endangered	2	False	0
812_Stage10_Zone1	72.8	72.8	0	Endangered	Endangered	2	False	0
812_Stage11_Zone1	72.8	72.8	0	Endangered	Endangered	2	False	0
812_Stage12_Zone1	72.8	72.8	0	Endangered	Endangered	2	False	0
812_Stage1_Zone2	58.6	58.6	0	Endangered	Endangered	2	False	0
812_Stage3_Zone2	58.7	58.7	0	Endangered	Endangered	2	False	0
812_Stage4_Zone2	58.7	58.7	0	Endangered	Endangered	2	False	0
812_Stage6_Zone2	58.7	58.7	0	Endangered	Endangered	2	False	0
812_Stage8_Zone2	58.7	58.7	0	Endangered	Endangered	2	False	0
812_Stage9_Zone2	58.7	58.7	0	Endangered	Endangered	2	False	0

812_Stage10_Zone2	58.7	58.7	0	Endangered	Endangered	2	False	0
812_Stage11_Zone2	58.7	58.7	0	Endangered	Endangered	2	False	0
812_Stage12_Zone2	58.7	58.7	0	Endangered	Endangered	2	False	0
							Subtotal	**0**
Myotis macropus / Southern Myotis (Fauna)								
1073_Stage3_Zone1	80.9	80.9	6	Vulnerable	Not Listed	2	False	243
1073_Stage4_1073_Zone1	80.9	80.9	7.9	Vulnerable	Not Listed	2	False	319
1073_Stage6_Zone1	80.9	80.9	3.8	Vulnerable	Not Listed	2	False	154
1073_Stage7_Zone1	80.9	80.9	2.7	Vulnerable	Not Listed	2	False	108
1073_Stage8_Zone1	80.9	80.9	0.67	Vulnerable	Not Listed	2	False	27
1073_Stage9_Zone1	80.9	80.9	0.45	Vulnerable	Not Listed	2	False	18
1073_Stage12_Zone1	80.9	80.9	0.77	Vulnerable	Not Listed	2	False	31
812_Stage1_Zone01	72.6	72.6	1.8	Vulnerable	Not Listed	2	False	64
812_Stage11_Zone1	72.8	72.8	1.5	Vulnerable	Not Listed	2	False	53
812_Stage1_Zone2	58.6	58.6	0.19	Vulnerable	Not Listed	2	False	6

							Subtotal	**1023**
Petaurus norfolcensis / Squirrel Glider (Fauna)								
1073_Stage3_Zone1	80.9	80.9	22.1	Vulnerable	Not Listed	2	False	895
1073_Stage4_1073_Zone1	80.9	80.9	25.7	Vulnerable	Not Listed	2	False	1038
1073_Stage5_Zone1	80.9	80.9	3.5	Vulnerable	Not Listed	2	False	142
1073_Stage6_Zone1	80.9	80.9	12	Vulnerable	Not Listed	2	False	485
1073_Stage7_Zone1	80.9	80.9	7.4	Vulnerable	Not Listed	2	False	298
1073_Stage8_Zone1	80.9	80.9	9.2	Vulnerable	Not Listed	2	False	373
1073_Stage9_Zone1	80.9	80.9	8.2	Vulnerable	Not Listed	2	False	333
1073_Stage10_Zone1	80.9	80.9	1.8	Vulnerable	Not Listed	2	False	71
1073_Stage11_Zone1	80.9	80.9	0.01	Vulnerable	Not Listed	2	False	1
1073_Stage12_Zone1	80.9	80.9	1.1	Vulnerable	Not Listed	2	False	46
812_Stage1_Zone01	72.6	72.6	1.8	Vulnerable	Not Listed	2	False	64
812_Stage4_Zone1	72.8	72.8	0.49	Vulnerable	Not Listed	2	False	18
812_Stage6_Zone1	72.8	72.8	0.18	Vulnerable	Not Listed	2	False	7
812_Stage7_Zone1	72.8	72.8	0.14	Vulnerable	Not Listed	2	False	5

812_Stage8_Zone1	72.8	72.8	0.03	Vulnerable	Not Listed	2	False	1
812_Stage9_Zone1	72.8	72.8	3.2	Vulnerable	Not Listed	2	False	115
812_Stage10_Zone 1	72.8	72.8	0.45	Vulnerable	Not Listed	2	False	16
812_Stage11_Zone 1	72.8	72.8	4.5	Vulnerable	Not Listed	2	False	164
812_Stage12_Zone 1	72.8	72.8	1.1	Vulnerable	Not Listed	2	False	39
812_Stage1_Zone2	58.6	58.6	0.19	Vulnerable	Not Listed	2	False	6
812_Stage3_Zone2	58.7	58.7	0.19	Vulnerable	Not Listed	2	False	6
812_Stage4_Zone2	58.7	58.7	1.2	Vulnerable	Not Listed	2	False	34
812_Stage6_Zone2	58.7	58.7	0.09	Vulnerable	Not Listed	2	False	3
812_Stage8_Zone2	58.7	58.7	0.63	Vulnerable	Not Listed	2	False	19
812_Stage9_Zone2	58.7	58.7	0.45	Vulnerable	Not Listed	2	False	13
812_Stage10_Zone 2	58.7	58.7	0.19	Vulnerable	Not Listed	2	False	6
812_Stage11_Zone 2	58.7	58.7	0.21	Vulnerable	Not Listed	2	False	6
812_Stage12_Zone 2	58.7	58.7	0.67	Vulnerable	Not Listed	2	False	20
							Subtotal	**4224**
Phascolarctos cinereus / Koala (Fauna)								
1073_Stage3_Zone 1	80.9	80.9	22.1	Vulnerable	Vulnerable	2	False	894
1073_Stage4_1073 _Zone1	80.9	80.9	25.7	Vulnerable	Vulnerable	2	False	1038

1073_Stage5_Zone1	80.9	80.9	3.5	Vulnerable	Vulnerable	2	False	142
1073_Stage6_Zone1	80.9	80.9	12	Vulnerable	Vulnerable	2	False	485
1073_Stage7_Zone1	80.9	80.9	7.4	Vulnerable	Vulnerable	2	False	298
1073_Stage8_Zone1	80.9	80.9	9.2	Vulnerable	Vulnerable	2	False	373
1073_Stage9_Zone1	80.9	80.9	8.2	Vulnerable	Vulnerable	2	False	333
1073_Stage10_Zone1	80.9	80.9	1.8	Vulnerable	Vulnerable	2	False	71
1073_Stage11_Zone1	80.9	80.9	0.01	Vulnerable	Vulnerable	2	False	1
1073_Stage12_Zone1	80.9	80.9	1.1	Vulnerable	Vulnerable	2	False	46
812_Stage1_Zone01	72.6	72.6	1.8	Vulnerable	Vulnerable	2	False	64
812_Stage4_Zone1	72.8	72.8	0.49	Vulnerable	Vulnerable	2	False	18
812_Stage6_Zone1	72.8	72.8	0.18	Vulnerable	Vulnerable	2	False	7
812_Stage7_Zone1	72.8	72.8	0.14	Vulnerable	Vulnerable	2	False	5
812_Stage8_Zone1	72.8	72.8	0.03	Vulnerable	Vulnerable	2	False	1
812_Stage9_Zone1	72.8	72.8	3.2	Vulnerable	Vulnerable	2	False	115
812_Stage10_Zone1	72.8	72.8	0.45	Vulnerable	Vulnerable	2	False	16
812_Stage11_Zone1	72.8	72.8	4.5	Vulnerable	Vulnerable	2	False	164

812_Stage12_Zone 1	72.8	72.8	1.1	Vulnerable	Vulnerable	2	False	39
812_Stage1_Zone2	58.6	58.6	0.19	Vulnerable	Vulnerable	2	False	6
812_Stage3_Zone2	58.7	58.7	0.19	Vulnerable	Vulnerable	2	False	6
812_Stage4_Zone2	58.7	58.7	1.2	Vulnerable	Vulnerable	2	False	34
812_Stage6_Zone2	58.7	58.7	0.09	Vulnerable	Vulnerable	2	False	3
812_Stage8_Zone2	58.7	58.7	0.63	Vulnerable	Vulnerable	2	False	19
812_Stage9_Zone2	58.7	58.7	0.45	Vulnerable	Vulnerable	2	False	13
812_Stage10_Zone 2	58.7	58.7	0.19	Vulnerable	Vulnerable	2	False	6
812_Stage11_Zone 2	58.7	58.7	0.21	Vulnerable	Vulnerable	2	False	6
812_Stage12_Zone 2	58.7	58.7	0.67	Vulnerable	Vulnerable	2	False	20
							Subtotal	**4223**
Rhodamnia rubescens / Scrub Turpentine (Flora)								
1073_Stage3_Zone 1	N/A	N/A	13	Critically Endangered	Not Listed	3	True	39
1073_Stage4_1073 _Zone1	N/A	N/A	34	Critically Endangered	Not Listed	3	True	102
1073_Stage5_Zone 1	N/A	N/A	3	Critically Endangered	Not Listed	3	True	9
1073_Stage6_Zone 1	N/A	N/A	9	Critically Endangered	Not Listed	3	True	27
1073_Stage7_Zone 1	N/A	N/A	15	Critically Endangered	Not Listed	3	True	45

1073_Stage8_Zone1	N/A	N/A	9	Critically Endangered	Not Listed	3	True	27
1073_Stage9_Zone1	N/A	N/A	17	Critically Endangered	Not Listed	3	True	51
1073_Stage10_Zone1	N/A	N/A	8	Critically Endangered	Not Listed	3	True	24
1073_Stage11_Zone1	N/A	N/A	3	Critically Endangered	Not Listed	3	True	9
1073_Stage12_Zone1	N/A	N/A	7	Critically Endangered	Not Listed	3	True	21
							Subtotal	**354**
Senna acclinis / Rainforest Cassia (Flora)								
1073_Stage9_Zone1	80.9	80.9	1	Endangered	Not Listed	2	False	40
							Subtotal	**40**
Tyto tenebricosa / Sooty Owl (Fauna)								
1073_Stage3_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage4_1073_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage5_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage6_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage7_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0

1073_Stage8_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage9_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage10_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage11_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage12_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
812_Stage1_Zone01	72.6	72.6	0	Vulnerable	Not Listed	3	True	0
812_Stage4_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage6_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage7_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage8_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage9_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage10_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage11_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage12_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage1_Zone2	58.6	58.6	0	Vulnerable	Not Listed	3	True	0
812_Stage3_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
812_Stage4_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0

812_Stage6_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
812_Stage8_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
812_Stage9_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
812_Stage10_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
812_Stage11_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
812_Stage12_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
							Subtotal	**0**
Vespadelus troughtoni / Eastern Cave Bat (Fauna)								
1073_Stage3_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage4_1073_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage5_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage6_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage7_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage8_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage9_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage10_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0

1073_Stage11_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
1073_Stage12_Zone1	80.9	80.9	0	Vulnerable	Not Listed	3	True	0
812_Stage1_Zone01	72.6	72.6	0	Vulnerable	Not Listed	3	True	0
812_Stage4_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage6_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage7_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage8_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage9_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage10_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage11_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage12_Zone1	72.8	72.8	0	Vulnerable	Not Listed	3	True	0
812_Stage1_Zone2	58.6	58.6	0	Vulnerable	Not Listed	3	True	0
812_Stage3_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
812_Stage4_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
812_Stage6_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
812_Stage8_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
812_Stage9_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
812_Stage10_Zone2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0

812_Stage11_Zone 2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
812_Stage12_Zone 2	58.7	58.7	0	Vulnerable	Not Listed	3	True	0
							Subtotal	**0**